

# 1<sup>st</sup> Joint Meeting of DGG – ACerS GOMD

including

88<sup>th</sup> Annual Meeting of German Society  
of Glass Technology (DGG)

Glass & Optical Materials Division Annual  
Meeting (ACerS GOMD)

together with

10<sup>th</sup> International Conference on Advances  
in Fusion and Processing of Glass (AFPG)

Glass Trend Seminar

2<sup>nd</sup> International Glass Fiber Symposium

Aachen, Germany

25 – 30 May 2014

## Programme



The Glass and Optical  
Materials Division  
of ACerS



German Society  
of Glass  
Technology

We thank our partners for their kind support:



***GERRESHEIMER***



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## Conference Venue

Eurogress Aachen  
Monheimsallee 48  
52062 Aachen  
Germany  
P: +49 2419131-0  
F: +49 2419131-200  
info@eurogress-aachen.de  
www.eurogress-aachen.de

## Preface

The 1<sup>st</sup> Joint Meeting of DGG-ACerS-GOMD takes place from May 25 – 30, 2014 in the city of Aachen, Germany. This congress merges, for the first time, the Annual Meetings of the German Society of Glass Technology (DGG) and of the Glass & Optical Materials Division of the American Ceramic Society (ACerS-GOMD). It also hosts the 10<sup>th</sup> International Conference on Advances in Fusion and Processing of Glass (AFPG), the 2<sup>nd</sup> International Glass Fiber Conference, a special Symposium on Nuclear Waste Forms, and a Glass Trend Seminar. More than 400 oral and poster contributions cover a wide scope of topics reaching from the fundamentals of the glassy state and amorphous materials to energy applications of glass to topics related to health, medical, and biological applications as well as to optical materials and devices, and finally to glass production technology. This is truly a unique opportunity for glass scientists and technologists alike.

The idea to hold this joint conference was born at PACRIM 2011 in Cairns, Australia. It formed around the nucleus of the symposium Advances in Fusion and Processing of Glass which took place at that conference and eventually led to the organization of a fully-fledged joint international conference of DGG and GOMD-ACerS. It was agreed that a reciprocal joint ACerS-GOMD and DGG meeting will be held in 2015 in the US. With these initiatives, the organizers hope to strengthen the – informally well established – ties between the glass communities in the US and Europe.

The city of Aachen is a truly interesting conference venue. It not only hosts RWTH Aachen University, one of Germany's finest schools of engineering, founded in 1870. Its roots date back to the Roman Empire where the city with its numerous hot spas served as a rest and recreation center for the Roman army. The historical city hall rests on foundations dating back to this age. During the early Medieval age, the city was the preferred residence of Emperor Charlemagne ruling, at his time, over a realm covering major parts of recent Germany, France, Belgium, The Netherlands, Luxembourg, Switzerland, and Northern Italy. Since his coronation in 800 A.D. in the octagon of Aachen Cathedral, numerous German emperors have been crowned at the very place. A concert given on the occasion of our conference is meant to inspire the delegates to venture through the historical city.

At the Opening Ceremony of the congress, a number of high-ranking scientific awards will be presented, among which are the International Otto Schott Research Award, the George W. Morey Award, the Donald Stookey Award, the Norbert J. Kreidl Award, the Varshneya Award, the Adolf Dietzel Industry Award, the Gehlhoff Ring, and the Otto Schott Memorial Medal. Ruud Beerkens, Eindhoven, The Netherlands, winner of the Otto Schott Memorial Medal, will give a keynote lecture during the ceremony.

A special welcome goes to all of our international students. They may not only enjoy the participation in the conference programme itself, but also take an active part in the student workshop “Glas?Klar!” – “Clear as Glass”, and take the opportunity to have face-to-face table discussions with outstanding individuals from industry, research centers, and academia during an event termed “Speed Dating with Professionals”.

Finally, the organizers want to express sincere gratitude to the manifold contributors to this event, and to the numerous sponsors. Special thanks go to the symposia chairs from both sides of the Atlantic Ocean who did their very best in composing and organizing the symposia programmes.

Prof. Dr. Reinhard Conradt  
RWTH Aachen University, Institute of Mineral Engineering  
Department of Glass and Ceramic Composites

Prof. Steve W. Martin  
Iowa State University of Science & Technology,  
Department of Materials Science & Engineering, USA

Ph. D. Gang Chen  
Ohio University, USA

Prof. Dr. Hansjürgen Barklage-Hilgefort  
President of the  
Deutsche Glastechnische Gesellschaft (DGG)

Dr. Ulrich Roger  
Managing Director of the  
Deutsche Glastechnische Gesellschaft (DGG)

# **Officers of the 1<sup>st</sup> Joint Meeting of DGG – ACerS GOMD**

## **Conference Chairs & Assistants:**

Reinhard Conradt, GHI, RWTH Aachen University, Germany

Andreas Prange, RWTH Aachen University, Germany

Steve Martin, Iowa State University, USA

Gang Chen, Ohio University, USA

## **Conference Organization**

Ulrich Roger, Deutsche Glastechnische Gesellschaft e.V.

## **Glass & Optical Materials Division Officers**

Shibin Jiang, AdValue Technology. LLC, USA, President

Randy Youngman, Corning Incorporated, USA

Steven A. Feller, Coe College, USA

Edgar Zanotto, Federal University of Sao Carlos, Brazil

## **Managing Board of the German Society of Glass Technology**

Hansjürgen Barklage-Hilgefort, Ardagh Group, President

Reinhard Conradt, GHI, RWTH Aachen

Hans-Bernhard Führ, Glashütte Freital GmbH

Günter Lubitz, Vetropack Holding AG

Christian Rüssel, Otto- Schott-Institut für Materialforschung (OSIM), FSU Jena

Reinhard C. Runte, Saint-Gobain Glass Deutschland GmbH

# **Symposia Chairs of the 1<sup>st</sup> Joint Meeting of DGG – ACerS GOMD:**

## ***I Advances in Fusion and Processing of Glass***

Reinhard Conradt, GHI, RWTH Aachen University, Germany

Ruud Beerkens, CelSian Glass & Solar b.v., The Netherlands

## ***II Energy Applications of Glass – Fundamentals and Application***

Joachim Deubener, Clausthal University of Technology, Germany

Steve Martin, Iowa State University, USA

## ***III Health, Medical, Biological Aspects – Fundamentals and Application***

A. R. Boccaccini, University of Erlangen-Nürnberg, Germany

M. N. Rahaman, Missouri University of Science and Technology, USA

## ***IV Fundamentals of the Glassy State and Amorphous Materials***

Lothar Wondraczek, Otto-Schott-Institute of Materials Research, University Jena, Germany

Pierre Lucas, The University of Arizona, USA

Gang Chen, Ohio University, USA

## ***V Optical Materials and Devices – Fundamentals and Application***

Jurejun Hu, University of Delaware, USA

Kathleen Richardson, University of Central Florida, USA

Johann Troles, Univ. de Rennes 1, France

## ***VI Nuclear Waste Forms – Fundamentals and Application***

Joseph Ryan, Pacific Northwest National Laboratory, USA

Edda Raedlein, Ilmenau University of Technology, Germany

## ***VII 2<sup>nd</sup> International Glass Fiber Symposium***

Kirsten Hellmann, RWTH Aachen University, Germany

Reinhard Conradt, RWTH Aachen University, Germany

Thomas Gries, RWTH Aachen University, Germany

Davide Pico, RWTH Aachen University, Germany

# ICG Technical Committees

## Eurogress Aachen

<b>Sunday, 25 May 2014</b>	<b>afternoon</b>
<b>ICG: TC 07</b> "Crystallisation & Glass Ceramics" Conference room <b>K5</b>	<b>16.00 – 19.00</b>
<b>ICG: TC 23</b> "Education" Conference room <b>K7/8</b>	<b>15.00 – 18.00</b>
<b>Monday, 26 May 2014</b>	<b>afternoon</b>
<b>ICG: TC 11</b> "Materials for Furnaces" Conference room <b>K7/8</b>	<b>15.00 – 19.00</b>
<b>Friday, 30 May 2014</b>	<b>morning/afternoon</b>
<b>ICG: TC 09</b> "Energy Efficiency" Conference room <b>K7/8</b>	<b>09.00 – 15.00</b>

# GOMD / DGG / Glass Trend Meetings

## Eurogress Aachen

<b>Sunday, 25 May 2014</b>	<b>afternoon</b>
<b>GOMD board meeting</b> Conference room <b>K9</b>	<b>15.00 – 17.00</b>
<b>Monday, 26 May 2014</b>	<b>morning/afternoon</b>
<b>Annual members' meeting of DGG</b> Conference room <b>K2</b>	<b>08.00 – 09.15</b>
<b>Annual members' meeting of HVG</b> Conference room <b>K2</b>	<b>18.15 – 19.30</b>
<b>Tuesday, 27 May 2014</b>	<b>afternoon</b>
<b>Glass Trend: Council Meeting</b> Conference room <b>K6</b>	<b>17.45 – 19.45</b>



## Mitgliederversammlungen

**08.00**            **82. Mitgliederversammlung der Deutschen Glastechnischen Gesellschaft (DGG) e. V.**  
**Eurogress Aachen, Konferenzraum K2**

**Tagesordnung:**

1.     Tätigkeitsbericht 2013\*)
  2.     Berichte der Fachausschussvorsitzenden der DGG\*)
  3.     Bericht über das DGG-Glasforum\*)
  4.     Wahlen zum DGG-Vorstand und DGG-Vorstandsrat
  5.     Genehmigung des Jahresabschlusses 2013 und Entlastung
  6.     Ehrungen
  7.     Bekanntgabe von Veranstaltungen
  8.     Verschiedenes
- \*) Diese Unterlagen sind im Heft 2 / 2014 des dgg journals zur Kenntnisnahme für alle DGG-Mitglieder veröffentlicht.

**18.15**            **84. Ordentliche Mitgliederversammlung der Hüttentechnischen Vereinigung der Deutschen Glasindustrie (HVG) e.V.**  
**Eurogress Aachen, Konferenzraum K2**  
– Hierzu ergehen besondere Einladungen –

09.30

## **Opening Ceremony**

**Eurogress Aachen, Europa Saal**

### **Opening Address**

Prof. Dr. Reinhard Conradt  
RWTH Aachen University, Institute of Mineral  
Engineering, Department of Glass and Ceramic  
Composites

Prof. Steve W. Martin  
Iowa State University of Science & Technology,  
Department of Materials Science & Engineering,  
USA

Prof. Dr. Hansjürgen Barklage-Hilgefort  
President of the Deutsche Glastechnische  
Gesellschaft e. V. (DGG)

### **Welcoming Speech**

Marcel Philipp  
Lord mayor of the City of Aachen

### **Interlude**

Trio Soli Sono, Aachen  
Natalie Becker, Johanna Daske, Olaf Futyma – flutes

### **Honour**

Presentation of the Otto-Schott-Denk Münze  
(Otto Schott Memorial Medal of DGG)  
by Prof. Barklage-Hilgefort

### **Laudation**

Prof. Dr. Reinhard Conradt, RWTH Aachen

### **Lecture of the Otto Schott Memorial Medal awardee**

Prof. Dr. Ruud G. C. Beerkens  
CelSian Glass & Solar b.v., Eindhoven, NL  
“Trends in Glass Production – Innovation or  
Slowdown?”

### **Interlude**

Trio Soli Sono, Aachen

**Honours**

Presentation of the Adolf-Dietzel-Industriepreis of DGG by Prof. Barklage-Hilgefort

Presentation of the Golden Gehlhoff Ring of DGG by Prof. Barklage-Hilgefort

**Laudation**

Priv.-Doz. Dr.-Ing. habil. Hayo Müller-Simon, HVG, Offenbach

**ACerS GOMD Awards**

Presentation of the Stookey Lecture of Discovery Award

Presentation of the George W. Morey Award

Presentation of the Norbert J. Kreidl Award

Presentation of the Varshneya Frontiers of Glass Science Award

Presentation of Otto Schott Award by Dr. Hans-Joachim Konz, Member of the Management Board of SCHOTT AG

**Laudation**

Prof. Dr. Carlo G. Pantano, Penn State University, PA, USA

**Interlude**

Trio Soli Sono, Aachen

Important Note  
for your  
Calendar:

**2<sup>nd</sup> ACerS GOMD-DGG  
Joint Annual Meeting**

including

**89. Glastechnische Tagung**

and

**Annual Meeting of the  
Glass & Optical Materials  
Division (GOMD)**

taking place

**17 – 22 May 2015  
in Miami, FL (USA).**

## Guided Tours

Meeting point in front of the Congress Centre at the bus station „Eurogress“, Monheimsallee

**Group A**     **3B – The Fibreglass Company, Battice, Belgium**  
***www.3b-fibreglass.com***

**13.00**     Departure of the bus

3B-The Fibreglass Company (3BF), part of Braj Binani Group, is a leading fibre glass developer and supplier and operates state-of-the-art glass fibre manufacturing facilities in Birkeland, Norway in Battice, Belgium and in Goa, India.

The production plant in Battice is together with a Science & Technology Centre gathering a unique expertise for future development and innovation. The company is head-quartered in Battice and has a Customer Service Centre near Brussels. Formed as an independent entity as a consequence of the acquisition by Owens Corning of the Vetrotex reinforcements businesses, 3B has a rich heritage of expertise in fibre glass development and production. Advantex® glass and HiPer-tex™ high performance fibre are well established brands that combine class leading performance with low environmental emissions.

3B is fundamentally committed to operating with minimal impact on the environment. By using the proprietary Advantex® technology, the recognized benchmark in the industry for clean technology, 3B is continuously working to set new standards within the global fibre glass industry. That is, because Advantex® glass fibre composition and manufacturing technology is a perfect example of integrated pollution prevention and the highest energy efficiency coming together in an optimized process.

3B offers unrivalled levels of technical competence as well as a total commitment to supporting customers locally and internationally. Europe is the main centre for innovation in the global reinforced plastics industry and 3B is at its heart; forming strong bonds with customers, reacting quickly through close proximity to changing needs and challenges, and working together to mould a more profitable and sustainable future.

Arrival at Eurogress: 18.00

**Group B      Ceramic Fuel Cells GmbH, Heinsberg**  
**[www.ceramicfuelcells.de](http://www.ceramicfuelcells.de)****13.00**      Departure of the bus

Ceramic Fuel Cells (CFC) Group ([www.cfcl.com.au](http://www.cfcl.com.au)) is a world leader in developing and commercialising Solid Oxide Fuel Cell (SOFC) technology. The fuel cell is the “engine” in small-scale, micro-Combined Heat & Power (micro-CHP) and distributed generation appliances for homes and small businesses fuelled by Natural Gas or bio-Gas. CFC’s SOFC technology has the world’s highest net electrical efficiency from a small-scale generator (up to 60%), leading to significantly reductions in carbon dioxide emissions.

We are a leader in commercialising this technology, delivering our BlueGen® product to our key markets in Europe since the beginning of 2012. Indeed we are the only company offering commercial fuel cell units for this market segment in Europe.

CFC’s operating base is international, with extensive R&D, testing and prototyping facilities in Melbourne, Australia, manufacturing, sales and service in Heinsberg Germany, and sales and service in the UK. To date CFC employs about 140 staff. Ceramic Fuel Cells is listed on both the London Stock Exchange AIM market (floated March 2006), and on the Australian Stock Exchange (floated July 2004). The company’s code on both exchanges is CFU.

The manufacturing facility of CFC GmbH in Heinsberg is a small series production facility for assembling fuel cell stacks as well as BlueGen systems. Glass-ceramic seals are critical components for sealing fuel cell stacks. In Heinsberg, seal pastes are produced and then dispensed onto the sealing areas of the stack components. Both seal dispensing and stack assembly is carried out by robots to guarantee high quality. After assembly the stacks are sintered at about 800°C to form the seal and activate the stack. After cool-down, the fuel cell stack is checked for geometric dimensions and leak tightness. BlueGen is manufactured on a manual appliance assembly line. Extensive QA/QC checks have been developed and are in place for components, sub-assemblies and final product to ensure a positive customer image of the technology. The transition from prototyping and field testing to manufacturing and sales of a commercial product has been a significant challenge for the company.

*Programme:*

- Welcome
- Presentation of the company, the technology and the product BlueGen
- Split up into small groups
- Guided tour through stack production
- Guided tour through production BlueGen

Arrival at Eurogress: 17.30

**Group C      BASF Personal Care and Nutrition GmbH,  
Düsseldorf**

***www.basf.com***

**13.15**

Departure of the bus

BASF is the world leading chemical company. The portfolio ranges from chemicals, plastics, performance products and crop protection products to oil and gas. BASF had sales of €72.1 billion in 2012 and more than 110,000 employees as of the end of the year. With six Verbund sites and approximately 380 additional production sites, BASF supports customers and partners in almost every country in the world.

Düsseldorf plant:

One of the biggest Silicate plant world wide is now part of the production site of BASF Personal Care and Nutrition GmbH in Düsseldorf/Monheim. It was founded in 1899 by Fritz Henkel and was part of the Henkel Group until 2000. The silicate plant is running by 65 employees, 24/7. Approximately 900 T t/a of high quality silicates solutions are produced on this site.

The production process covers the sand/sodium mixing and transports to the furnaces as well the dissolution step for tailor-made productions. Water glass is used in a wide application area.

The furnaces are gas-fired and based on the Siemens-Martin-principle. The liquid products are transported by train and truck, mainly for Europe.

*Programme:*

- Presentation
- Guided tour production facilities

Arrival at Eurogress: 17.15

**Group D RWE Power AG Tagebau – (Open Mine)  
Garzweiler**

***[www.rwe.com/web/cms/de/59998/  
rwe-power-ag/standorte/garzweiler/](http://www.rwe.com/web/cms/de/59998/rwe-power-ag/standorte/garzweiler/)***

**13.15** Departure of the bus

Brown coal or lignite, as it is also known, is a grade of coal intermediate between coal and peat. It is yellowish brown in color with a woody texture. Brown coal contains more moisture and less energy per kilogram than more mature coals. It also tends to dry and crumble when exposed to air. Brown coal is a second tier fuel. Large deposits are found in the United States, Canada, Germany, and elsewhere, chiefly in Tertiary formations. German brown coal localities are found from Cologne in the west of Germany right across eastwards. The eastern material is not so profitable to mine, and many pits have been closed. Cumulative brown coal production has been 187 million tons up to 1996. Somewhere between 80-90% is used in electricity production, and power stations are a normal feature of the skyline in brown coal areas. A large mine may have a life of 50 years, but it "moves" with time. There are issues of relocating and resettling people, land reclamation, management of river courses and water tables and relocating streets and highway connections. The mining activity of Garzweiler, from Garzweiler I (first site, 66 km<sup>2</sup>), has been extended in West-direction since 2006 into the deposit Garzweiler II (44 km<sup>2</sup>). Here 1.3 billion tons of brown coal will be available until 2045. Sand, stones, and other soils have to be removed to obtain access to the brown coal deposit layers being, with a total thickness of about 40 m, located at a depth of 40 m to 210 m from ground level. Very large machines collect and transport the mined material. In NRW (Nordrhein-Westfalen) several power plants are fired with the mined brown coal. About 35 to 40 million tons are extracted per year. The mining activities employ 1725 people (2010) in this area.

Special machines have been built to extract the coal and the surrounding sediments. The machines can be 220 m long and 50 m high. The cutting wheel is about 20 m diameter. Transportation within the mine is by conveyor belts (88 km long). After mining operation finishes, re-cultivation of the area takes place and agriculture area, touristic sites, lakes and forest area are provided.



*Programme:*

- Introduction
- Guided bus tour passing through open mine, land restoration, and a city where the population was relocated.

The open mine will be shown to the visitors and a tour will be arranged to overview the mining activities in Garzweiler.

Arrival at Eurogress: 17.15

**Group E      Berzelius Stolberg GmbH (BBH), Stolberg**  
***www.berzelius.de***

**13.15**      Departure of the bus

The BERZELIUS STOLBERG GmbH (BBH) in Stolberg near Aachen is one of the largest and most advanced primary lead smelters of the world. The smelter, established in 1848, achieved this distinction through the introduction of the QSL process technology in 1990. Ever since, this company, employing about 230 workers, is an international leader in technology for lead smelting and environment protection measures.

The QSL technology makes it possible to win lead from lead ores and secondary raw materials in a single encapsulated aggregate which, in comparison to conventional technologies, has a noticeably lower specific energy consumption. The energy requirements sank from 15.2 right down to 4.5 GJ per ton of lead produced, by exploiting the energy of the sulfides contained in the ores as the main source of energy. The wide range of materials which can be charged, underscores the efficiency of this process.

The annual production of 155,000 tonnes of lead and alloys as well as 130,000 tonnes of sulphuric acid also set distinctive international standards.

At the moment, 25 million euros will be invested in order to triple the production of 350 tonnes silver in 2013. The precious metal is an additional product in the production of lead.

BBH is part of the international ECOBAT Technologies Group, the largest lead producer in the world. ECOBAT Group offers the world's only closed recycling loop for lead acid batteries.

*Programme:*

- Welcome
- Company presentation
- Guided plant tour

Arrival at Eurogress: 17.00

**Group F Saint-Gobain Glass Deutschland GmbH,  
Herzogenrath*****www.saint-gobain-glass.de*****13.30** Departure of the bus

The plant at Herzogenrath is part of the international group of Saint-Gobain and one of the plants in Germany producing flat glass. In the year 1970 the first floatline was built on the area of the factory which already produced glass in the 19th century. In the meanwhile, the plant produces float glass in the third campaign; that means the current production started with the third technically renewed floatline in 2005. The plant of Herzogenrath is specialized in manufacturing colored glass for the automotive industry. It produces green glass in several tints since 1988 and has produced the product VENUS in the past. VENUS is a special dark colored glass used in cars for side, rear or roof windows. The clients of the plant are transformers for the automotive sector or the associated company Saint-Gobain SEKURIT that is also internationally active in processing car glass or glass modules.

Arrival at Eurogress: 17.00

**Group G Fraunhofer Institute for Production  
Technology IPT, Aachen*****www.ipt.fraunhofer.de*****13.45** Departure of the bus

The aim of the Fraunhofer IPT is to develop new and optimize existing solutions through practice-oriented research and development for clients in modern production industries. The Fraunhofer IPT transfers the results of this R&D directly into practice in client companies, which come from a wide range of industries – the automotive industries and its suppliers, especially tool and die making, as well as fine-mechanics and optical industries, aerospace industries and machine tool manufacturers. The Fraunhofer IPT also assists international clients via the Fraunhofer Center for Manufacturing Innovation CMI in Boston, USA.

The Fraunhofer IPT employs a staff of approximately 350, currently working on projects in 6000 m<sup>2</sup> facilities, 3500 m<sup>2</sup> of which are used as laboratories and machining workshops.

**Fraunhofer Institute for Laser Technology ILT,  
Aachen*****www.ilt.fraunhofer.de***

With about 400 employees and more than 11,000 m<sup>2</sup> of usable floorspace the Fraunhofer Institute for Laser Technology ILT is worldwide one of the most important development and contract research institutes of its specific field. The activities cover a wide range of areas such as the development of new laser beam sources and components, precise laser based metrology, testing technology and industrial laser processes. This includes laser cutting, caving, drilling, welding and soldering as well as surface treatment, micro processing and rapid manufacturing.

Furthermore, the Fraunhofer ILT is engaged in laser plant technology, process control, modeling as well as in the entire system technology. We offer feasibility studies, process qualification and laser integration in customer specific manufacturing lines.

The Fraunhofer ILT is part of the Fraunhofer-Gesellschaft, with more than 66 institutes, 22,000 employees and an annual research budget of over 1.9 billion euros.

*Programme:*

- Presentation on the research activities of both institutes at Fraunhofer IPT
- Guided tour through the institute ILT and IPT

Arrival at Eurogress: 17.15

**Notice**

For all plant visits the number of participants is limited. Please mark in the registration form optional visits in case your first choice is booked out already.

This lists of the registered participants will be sent to the companies in advance of the meeting. Participation may be rejected on grounds of business competition.

For all plant visits sturdy shoes and adequate clothes (no short trousers) are indispensable.

## Time schedule of oral presentations (overview)

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### Tuesday, 27 May 2014

- **I. Advances in the Fusion and Processing of Glass (AFPG)** **08.30-12.20**  
**Europa Saal**  
Session I.1 Thermodynamics and reaction kinetics of oxide systems relevant to industrial glass melting
- **II. Energy Applications of Glass – Fundamentals and Application** **08.30-12.20**  
**Brüssel Saal**  
Session II.1 Batteries and ion conductive glasses I
- **III. Health, Medical, Biological Aspects – Fundamentals and Application** **08.30-12.20**  
**Conference room K3**  
Session III.1 Interactions of bioactive glass with aqueous and biological media
- **IV.A Fundamentals of the Glassy State and Amorphous Materials** **08.30-12.20**  
**Conference room K1**  
Session IV.A1 Nano- and micromechanical properties I  
Session IV.A2 Nano- and micromechanical properties II
- **IV.B Fundamentals of the Glassy State and Amorphous Materials** **08.30-12.20**  
**Conference room K2**  
Session IV.B3 Glass structure & glass formation I  
Session IV.B4 Glass structure & glass formation II
- **V. Optical Materials and Devices – Fundamentals and Application** **08.30-12.20**  
**Conference room K4/5**  
Session V.1 Optical material synthesis I  
Session V.2 Luminescence I

## Time schedule of oral presentations (overview, continued)

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### Tuesday, 27 May 2014

- **I. Advances in the Fusion and Processing of Glass (AFPG)** **13.30-18.00**  
**Europa Saal**  
Session I.2 Physics and chemistry of the melting & forming process
- **II. Energy Applications of Glass – Fundamentals and Application** **13.30-17.20**  
**Brüssel Saal**  
Session II.2 Batteries and ion conductive glasses II
- **III. Health, Medical, Biological Aspects – Fundamentals and Application** **13.30-17.40**  
**Conference room K3**  
Session III.2 Scaffolds for bone tissue engineering
- **IV.A Fundamentals of the Glassy State and Amorphous Materials** **13.30-17.40**  
**Conference room K1**  
Session IV.A5 Diffusion & ion exchange  
Session IV.A6 Elastic properties, fracture and durability
- **IV.B Fundamentals of the Glassy State and Amorphous Materials** **13.30-18.00**  
**Conference room K2**  
Session IV.B7 Glass structure & glass formation III  
Session IV.B8 Glass structure & glass formation IV
- **V. Optical Materials and Devices – Fundamentals and Application** **13.30-18.00**  
**Conference room K4/5**  
Session V.3 Sensors  
Session V.4 Photoinduced phenomena

## Time schedule of oral presentations (overview, continued)

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### Wednesday, 28 May 2014

- **I. Advances in the Fusion and Processing of Glass (AFPG)** 08.30-12.20  
**Europa Saal**  
Session I.3 Energy efficiency, flue gas chemistry, combustion, and heat transfer
- **II. Energy Applications of Glass – Fundamentals and Application** 08.30-12.20  
**Brüssel Saal**  
Session II.3 Batteries and ion conductive glasses III
- **III. Health, Medical, Biological Aspects – Fundamentals and Application** 08.30-12.20  
**Conference room K3**  
Session III.3 Compositional design of bioactive glass
- **IV.A Fundamentals of the Glassy State and Amorphous Materials** 08.30-12.20  
**Conference room K1**  
Session IV.A9 Constraint theory & simplistic modelling I  
Session IV.A10 Constraint theory & simplistic modelling II
- **IV.B Fundamentals of the Glassy State and Amorphous Materials** 08.30-12.20  
**Conference room K2**  
Session IV.B11 Glass structure & glass formation V  
Session IV.B12 Clustering and particle formation
- **V. Optical Materials and Devices – Fundamentals and Application** 08.30-12.20  
**Conference room K4/5**  
Session V.5 Luminescence II  
Session V.6 Optical material synthesis II

## Time schedule of oral presentations (overview, continued)

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### Wednesday, 28 May 2014

- **I. Advances in the Fusion and Processing of Glass (AFPG)** 13.30-18.00  
**Europa Saal**  
Session I.4 Furnace design and advanced melting concepts
- **II. Energy Applications of Glass – Fundamentals and Application** 13.30-17.20  
**Brüssel Saal**  
Session II.4 Sealants and solder glasses
- **III. Health, Medical, Biological Aspects – Fundamentals and Application** 13.30-17.50  
**Conference room K3**  
Session III.4 Bioactive glass in bone and tissue repair  
Session III.5 Round-table discussion on key issues and future directions in glasses for medical applications
- **IV.A Fundamentals of the Glassy State and Amorphous Materials** 13.30-17.40  
**Conference room K1**  
Session IV.A13 Chalcogenides I  
Session IV.A14 Chalcogenides II
- **IV.B Fundamentals of the Glassy State and Amorphous Materials** 13.30-18.40  
**Conference room K2**  
Session IV.B15 Relaxation & extreme conditions I  
Session IV.B16 Relaxation & extreme conditions II
- **V. Optical Materials and Devices – Fundamentals and Application** 13.30-18.00  
**Conference room K4/5**  
Session V.7 Non linear optical materials and properties  
Session V.8 Radiation effects (joint session with symposium Nuclear Waste Forms)
- **VIII. Student Workshop** 13.30-17.50  
**Clear as Glass 2014**  
**Conference room K9**  
Session VIII.1 Structural and topological aspects of the mechanical properties of glass

**Thursday, 29 May 2014**

- **I. Advances in the Fusion and Processing of Glass (AFPG)** 08.30-12.20  
**Europa Saal**  
Session I.5 Advances in modeling of glass melting and forming, comprising process control and sensors
- **II. Energy Applications of Glass – Fundamentals and Application** 08.30-12.20  
**Brüssel Saal**  
Session II.5 Glasses and thin films for solar energy conversion
- **III. Health, Medical, Biological Aspects – Fundamentals and Application** 08.30-12.20  
**Conference room K3**  
Session III.6 Glass and glass-ceramics in dentistry  
Session III.7 Bioactive glass in wound healing, vascularization and soft tissue engineering
- **IV.A Fundamentals of the Glassy State and Amorphous Materials** 08.30-12.20  
**Conference room K1**  
Session IV.A17 Computational simulation I  
Session IV.A18 Computational simulation II
- **IV.B Fundamentals of the Glassy State and Amorphous Materials** 08.30-12.20  
**Conference room K2**  
Session IV.B19 Nucleation & Crystallization I  
Session IV.B20 Nucleation & Crystallization II
- **V. Optical Materials and Devices – Fundamentals and Application** 08.30-12.20  
**Conference room K4/5**  
Session V.9 Thin film  
Session V.10 Glass ceramics and optical ceramics I
- **VI. Nuclear Waste Forms – Fundamentals and Application** 08.30-12.20  
**Conference room K6**  
Session VI.1 Waste form development and processing  
Session VI.2 Glass corrosion: Isotopic characterization



## Time schedule of oral presentations (overview, continued)

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### Thursday, 29 May 2014

- **I. Advances in the Fusion and Processing of Glass (AFPG)** 13.30-18.00  
**Europa Saal**  
Session I.6 Surface treatment  
Panel discussion
- **II. Energy Applications of Glass – Fundamentals and Application** 13.30-18.00  
**Brüssel Saal**  
Session II.6 Thermal insulation glasses  
Panel discussion
- **IV.A Fundamentals of the Glassy State and Amorphous Materials** 13.30-17.00  
**Conference room K1**  
Session IV.A21 Computational simulation III – DFT  
Session IV.A22 Computational simulation IV
- **V. Optical Materials and Devices – Fundamentals and Application** 13.30-18.00  
**Conference room K4/5**  
Session V.11 Optical fibers  
Session V.12 Glass ceramics and optical ceramics II
- **VI. Nuclear Waste Forms – Fundamentals and Application** 13.30-18.00  
**Conference room K6**  
Session VI.3 Glass corrosion: Experiment  
Session VI.4 Glass corrosion: Modeling

### Friday, 30 May 2014

- **VI. Nuclear Waste Forms – Fundamentals and Application** 08.30-18.00  
**Conference room K6**  
Session VI.5 Glass corrosion IV
- **VII. 2nd International Glass Fiber Symposium** 08.15-12.25  
**Conference room K4/5**  
Session VII.1 Glassfiber
- **VII. 2nd International Glass Fiber Symposium** 13.30-17.40  
**Conference room K4/5**  
Session VII.2 Glassfiber

# I. Advances in the Fusion and Processing of Glass

Europa Saal

## Session I.1 Thermodynamics and reaction kinetics of oxide systems relevant to industrial glass melting

Chair: Prof. Reinhard Conradt, Aachen, Germany

08.30 P. Richet, IPGP, France; G. Ottonelle, Università di Genova, Italy (invited)

### **Thermodynamics of silicate glasses and melts**

09.10 J. Klouzek, P. Dyrčikova, ICT Prague, Czech Republic

### **Reaction kinetics of sulphur species during glass melting**

09.30 H. Müller-Simon, K. Gitzhofer, HVG Hüttentechnische Vereinigung der Deutschen Glasindustrie e.V., Germany

### **Sulfur refining of industrial glass melts**

09.50 Coffee break

## 10.20 **PLENARY LECTURE SCHOTT AWARD in Europa Saal**

11.20 R. Beerkens, CelSian Glass and Solar, The Netherlands

### **Advances in understanding industrial glass melting phenomena**

11.40 R. Conradt, RWTH Aachen University, Germany

### **Comparative analysis of the thermal performance of industrial glass melting furnaces**

12.00 H. v. Limpt, CelSian Glass and Solar, The Netherlands

### **Thermodynamics of evaporation processes from glass melts**

12.20 Lunch buffet

## II. Energy Applications of Glass – Fundamentals and Application

Brüssel Saal

### Session II.1 Batteries and ion conductive glasses I

- Chair: Prof. Steve W. Martin, Ames, United States  
Prof. Hellmut Eckert, São Paulo, Brazil
- 08.30 M. Tatsumisago, A. Hayashi, Department of Applied Chemistry, Osaka Prefecture University, Japan  
**Development of all-solid-state batteries using sulfide glass-ceramic electrolytes (invited)**
- 09.10 D. Watson, B. Curtis, N. Dunlap, S. Martin, Iowa State University, United States  
**The mixed glass former effect in glassy solid state electrolytes: The structural analysis of  $0.5\text{Na}_2\text{S} + 0.5[\text{xSiS}_2 + (1-\text{x})\text{PS}_5/2]$**
- 09.30 T. Honma, T. Togashi, A. Sato, T. Komatsu, Nagaoka University of Technology, Japan  
**Crystallization behavior of sodium iron pyrophosphate glass for sodium ion batteries**
- 09.50 Coffee break
- 10.20 **PLENARY LECTURE SCHOTT AWARD in Europa Saal**
- 11.00 P. Maass, Universitaet Osnabrueck, Germany; S. Martin, Iowa State University, United States; M. Schuch, Universitaet Osnabrueck, Germany; C. Trott, Sandia National Laboratory, United States  
**Mixed glass former glasses: Theory and simulations (invited)**
- 11.40 C. Mugoni, M. Montorsi, University of Modena and Reggio Emilia, Italy; H. Jain, Lehigh University, United States; C. Siligardi, University of Modena and Reggio Emilia, Italy  
**Structure and electrical properties of glass metal nanocomposites**
- 12.00 S. Martin, C. Bischoff, K. Schuller, N. Dunlap, Iowa State University, United States  
**On the structure and properties of new mixed glass former  $\text{Na}_2\text{S} + \text{GeS}_2 + \text{PS}_5/2$  glasses**
- 12.20 Lunch buffet

### III. Health, Medical, Biological Aspects – Fundamentals and Application

Conference room K3

#### Session III.1 Interactions of bioactive glass with aqueous and biological media

- Chair: Dr. Leena Hupa, Turku, Finland  
Prof. Mohamed Rahaman, Rolla, United States
- 08.30 A. N. Cormack, Alfred University, United States;  
A. Tilocca, Department of Chemistry,  
University College London, United Kingdom  
**Simulations of bioactive glasses and their  
interaction with water (invited)**
- 09.10 L. Björkvik, S. Fagerlund, J. Massera, L. Hupa,  
Åbo Akademi, Finland  
**Initial dissolution rate of alkalis and earth  
alkalis from glasses based on S53P4**
- 09.30 D. Rohanova, D. Horkavcova, Institute of Chemical  
Technology, Czech Republic;  
A. R. Boccaccini, Institute of Biomaterials,  
University of Erlangen-Nuremberg, Germany  
**Interaction of glass-ceramic scaffold with SBF  
solutions and DMEM in vitro**
- 09.50 Coffee break
- 10.20 **PLENARY LECTURE SCHOTT AWARD  
in Europa Saal**
- 11.00 J. Christie, R. Ainsworth, University College  
London, United Kingdom;  
D. Di Tommaso, Queen Mary, University of London,  
United Kingdom;  
N. de Leeuw, University College London,  
United Kingdom  
**Understanding the solubility of phosphate-  
based bioactive glass from molecular  
dynamics simulations**
- 11.20 N. Murthy, D. Chung, D. Vezenov, T. Kowel,  
M. Falk, H. Jain, Lehigh University, United States  
**In situ evolution of the surface of 45S5  
bioglass in cell culture medium**
- 11.40 S. Kapoor, University of Aveiro, Portugal;  
A. Goel, Rutgers, The State University of  
New Jersey, United States;  
J. Ferreira, University of Aveiro, Portugal  
**Structure-solubility-bioactivity relationships in  
zinc and strontium co-doped bioactive glasses**
- 12.00 A. Goel, Rutgers, The State University of  
New Jersey, United States  
**Structure-solubility relationships in  
fluoride-containing phosphate glasses**
- 12.20 Lunch buffet

## IV. A Fundamentals of the Glassy State and Amorphous Materials

Conference room K1

### Session IV.A1 Nano- and micromechanical properties I

Chair: Prof. Josef Zwanziger, Halifax, Canada

08.30 M. Mackovic, F. Niekietel, E. Spiecker, Department of Materials Science and Engineering, Center for Nanoanalysis and Electron Microscopy, Germany

**Influence of topological anisotropy on the mechanical properties of silicate glasses: experimental approach via in situ TEM (invited)**

09.10 S. Striepe, J. Deubener, Clausthal University of Technology, Institute of Non-Metallic Materials, Germany;

M. Potuzak, Corning Incorporated, United States;

M. Smedskjaer, Section of Chemistry, Aalborg University, Denmark

**Influence of thermal history on micro-mechanical properties of alkaline earth aluminosilicate glasses: An indentation study**

09.30 G. Scannell, Rensselaer Polytechnic Institute/ University of Rennes 1, United States;

T. Rouxel, University of Rennes 1, France;

L. Huang, Rensselaer Polytechnic Institute, United States

**Indentation deformation and cracking behavior of titania containing silicate glasses**

09.50 Coffee break

10.20 **PLENARY LECTURE SCHOTT AWARD in Europa Saal**

### Session IV.A2 Nano- and micromechanical properties II

Chair: Dr. Mirza Mackovic, Erlangen, Germany

11.00 C. Calahoo, J. Zwanziger, Dalhousie University, Canada

**Nano-indentation studies of ion-exchanged alkali silicate glass**

11.20 S. Gomez, I. Dutta, N. Smith, Corning Incorporated, United States

**Structure & morphology of leached layers on glass surfaces and correlation with nano-mechanical properties**

- 11.40 A. Pönitzsch, INW, TU Clausthal, Germany;  
B. Poletto Rodrigues, Otto-Schott-Institute of  
Materials Research, FSU Jena, Germany;  
J. Deubener, INW, TU Clausthal, Germany;  
L. Wondraczek, Otto-Schott-Institute of Materials  
Research, FSU Jena, Germany;  
M. Nofz, Federal Institute of Materials Research and  
Testing (BAM), Germany  
**Micromechanical properties of glasses in the  
system CaO-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>**
- 12.00 C. Rößler, Clausthal University of Technology,  
Germany;  
S. Reinsch, Federal Institute for Materials  
Research and Testing, Germany;  
U. Bauer, Leibnitz Universität Hannover, Germany;  
J. Deubener, Clausthal University of Technology,  
Germany;  
R. Müller, Federal Institute for Materials Research  
and Testing, Germany;  
H. Behrens, Leibnitz Universität Hannover,  
Germany  
**Relaxation and sub-critical crack growth in  
molecular water bearing glasses**
- 12.20 Lunch buffet

## IV.B Fundamentals of the Glassy State and Amorphous Materials

Conference room K2

### Session IV.B3 Glass structure & glass formation I

Chair: Dr. Randall Youngman, Corning, United States

08.30 H. Inoue, R. Yang, A. Masuno, Y. Watanabe,  
The University of Tokyo, Japan

**Structure analysis of alkali-earth borate glasses prepared by containerless processing**

8.50 H. Takebe, S. Takahashi, Ehime University, Japan;  
D. Neuville, CNRS-IPGP, France

**Density, thermal properties and chemical durability of percalcic and peraluminus CaO–Al<sub>2</sub>O<sub>3</sub>–SiO<sub>2</sub> glasses**

09.10 J. Kjeldsen, Y. Yue, M. M. Smedskjaer,  
Aalborg University, Denmark;  
J. C. Mauro, R. E. Youngman, Corning Inc.,  
United States;  
L. Huang, Rensselaer Polytechnic Institute,  
United States

**Mixed cation effect in sodium aluminosilicate glasses**

09.30 A. Hannon, ISIS Facility - STFC, United Kingdom;  
L. Koudelka, I. Rösslerova, University of  
Pardubice, Czech Republic

**The structure of molybdenum- and tungsten-doped lead phosphate glasses**

09.50 Coffee break

10.20 **PLENARY LECTURE SCHOTT AWARD  
in Europa Saal**

### Session IV.B4 Glass structure & glass formation II

Chair: Dr. Randall Youngman, Corning, United States

11.00 M. Heyde, C. Büchner, L. Lichtenstein,  
H.-J. Freund, Fritz-Haber-Institute of the  
Max-Planck-Society, Germany (Keynote)

**The atomic structure of glass**

11.20 O. Alderman, Materials Development, Inc.,  
Arlington Heights, IL, United States;  
L. Skinner, Mineral Physics Institute, Stony Brook  
University, Stony Brook, New York, NY,  
United States;

C. Benmore, X-ray Science Division, Advanced  
Photon Source, Argonne National Laboratory,  
Argonne, IL, United States;

J. Neufeind, Spallation Neutron Source,  
Oak Ridge National Laboratory, Oak ridge, TN,  
United States;  
S. Tumber, D. Jin, A. Tamalonis, R. Weber,  
Materials Development, Inc., Arlington Heights,  
IL, United States;  
J. Parise, Mineral Physics Institute, Stony Brook  
University, Stony Brook, New York, NY,  
United States

**Structure of molten alkaline earth  
metatitanates,  $M_2+TiO_3$**

- 11.40 D. Möncke, Otto-Schott-Institut,  
Friedrich-Schiller-Universität, Germany;  
E. I. Kamitsos, National Hellenic Research  
Foundation, Greece;  
A. Winterstein-Beckmann, L. Wondraczek,  
Otto-Schott Institute for Material Research,  
Germany;  
D. Ehart, Otto-Schott-Institut, FSU Jena (retired),  
Germany;  
G. Tricot, LASIR, USTL, France
- Near and medium range order in borosilicate  
glasses probed by vibrational and NMR spec-  
troscopy**
- 12.00 J. Neufeind, ORNL, United States
- NOMAD, an unprecedented tool for the deter-  
mination of glass structures**
- 12.20 Lunch buffet



## V. Optical Materials and Devices – Fundamentals and Application

Conference room K4/5

### Session V.1 Optical material synthesis I

Chair: Dr. Juejun Hu, Newark, United States

08.30 L. Klein, Rutgers University, United States  
**Sol-gel processing of glasses: Inorganics to hybrids (invited)**

09.10 A. Saitoh, Graduate School of Science and Engineering, Ehime University, Japan;  
G. Tricot, UMR-CNRS 8516, Université de Lille 1, France;  
H. Takebe, Graduate School of Science and Engineering, Ehime University, Japan  
**Effect of B2O3 addition on properties and structures of SnO-P2O5-B2O3 glasses**

09.30 T. Kumagai, T. Kishi, T. Yano, Tokyo Institute of Technology, Japan  
**Effects of size and position of a bubble on resonance modes in glass optical microcavity**

09.50 Coffee break

10.20 **PLENARY LECTURE SCHOTT AWARD in Europa Saal**

### Session V.2 Luminescence I

Chair: Dr. Marcelo Nalin, São Paulo, Brazil

11.00 A. Herrmann, S. Kuhn, M. Tiegel, C. Rüssel, Otto-Schott-Institut für Materialforschung, Germany;  
J. Körner, J. Hein, M. C. Kaluza, Institute of Optics and Quantum Electronics, Germany  
**Relations between fluorescence properties and molecular structure of Yb<sup>3+</sup>-doped aluminosilicate glasses**

11.20 J. Massera, Åbo Akademi, Finland; L. Petit, nLIGHT corp., Finland;  
B. Glorieux, ICMCB, Bordeaux 1, France;  
J. Koponen, nLIGHT corp., Finland;  
L. Hupa, M. Hupa, Åbo Akademi, Finland  
**Nanoparticles doping of glasses**

- 11.40 J. Zavadil, Institute of Photonics and Electronics AS CR, Czech Republic;  
P. Gladkov, Institute of Photonics and Electronics AS CR, Praha, Czech Republic;  
I. Kabalci, Harran University, Sanliurfa, Turkey;  
P. Kostka, Institute of Rock Structure and Mechanics AS CR, Czech Republic  
**Luminescence properties of TeO<sub>2</sub>-ZnO-TiO<sub>2</sub>:Tm<sup>2+</sup>O<sub>3</sub> glasses**
- 12.00 G. Gao, L. Wondraczek, Otto-Schott-Institut, University of Jena, Germany  
**Heavily Eu<sup>3+</sup>-doped boroaluminosilicate glasses: Efficient red-emitting phosphors**
- 12.20 Lunch buffet

# I. Advances in the Fusion and Processing of Glass

Europa Saal

## Session I.2 Physics and chemistry of the melting & forming process

- Chair: Dr. Hong Li, Cheswick, United States
- 13.30 H. Behrens, Institute of Mineralogy, Leibniz University of Hannover, Germany (invited)  
**Reactive volatiles in silicate melts**
- 14.10 W. Woelffel, M.-H. Chopinet, Surface du verre et interfaces, CNRS/Saint-Gobain, France;  
 M. Toplis, IRAP, CNRS/University of Toulouse III, France;  
 C. Claireaux, Surface du verre et interfaces, CNRS/Saint-Gobain, France;  
 E. Boller, European synchrotron radiation facility, France;  
 E. Gouillart, Surface du verre et interfaces, CNRS/Saint-Gobain, France  
**Influence of calcium incorporation on the soda-lime glass batch melting reactivity**
- 14.30 A. Christmann, Institute of Non-Metallic Materials, Clausthal University of Technology, Germany and SCHOTT AG, Corp. Res. & Technol. Dev., Mainz, Germany;  
 A. Brutscher, B. Rüdinger, O. Hochrein, SCHOTT AG, Corp. Res. & Technol. Dev., Mainz, Germany;  
 J. Deubener, Institute of Non-Metallic Materials, Clausthal University of Technology, Germany  
**Characterization of aluminosilicate glass batch reactions during the melting down process**
- 14.50 L. Nemeč, M. Jebavá, P. Cincibusová, M. Vernerová, Laboratory of Inorganic Materials, joint workplace of the ICT Prague and the IRSM ASCR, v.v.i., Czech Republic;  
 M. Trochta, Glass Service, Inc., Czech Republic  
**Semiempirical model of bubble behaviour in glass-melt**
- 15.10 Coffee break
- 15.40 **PLENARY LECTURE MOREY AWARD in Europa Saal**
- 16.20 K. Gitzhofer, HVG Hüttentechnische Vereinigung der Deutschen Glasindustrie e.V., Germany  
**Effective emission control technology for boron containing glass melts**

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- 16.40 S. Thiele, R. Conradt, Institute of Mineral Engineering, RWTH Aachen University, Germany  
**Condensation from flue gases of borsosilicate glass melting tanks**
- 17.00 S.-R. Kahl, Ardagh Group, Dongen, The Netherlands  
**Glass defects related to redox instabilities**
- 17.20 C. Roos, IPGR, Switzerland; T. Struppert, Wiegand Glas, Germany; A. Rosin, Z. Negahdari, University Bayreuth, Germany  
**Hot-end coating of glass containers – strengths, risks and alternatives**
- 17.40 K. Kawamoto, S. Nishida, S. Nakane, H. Yamazaki, Nippon Electric Glass, Japan  
**A development of environmental friendly transparent lithium aluminosilicate glass ceramic**
- 18.00 End of session

## II. Energy Applications of Glass – Fundamentals and Application

Brüssel Saal

### Session II.2 Batteries and ion conductive glasses II

- Chair: Prof. Steve W. Martin, Ames, United States  
Prof. Philipp Maass, Osnabrück, Germany
- 13.30 H. Eckert, USP, Brazil; S. Martin,  
Iowa State University, United States  
**Mixed network former effects in phosphate-  
based glasses: Structural investigation by  
solid state NMR (invited)**
- 14.10 R. Böhmer, M. Adjei-Acheamfour, M. Storek,  
Universität Dortmund, Germany;  
S. Martin, Iowa State University, United States  
**Nuclear magnetic resonance studies of ion  
conducting glasses (invited)**
- 14.50 G. Broglia, C. Mugoni, C. Siligardi, M. Montorsi,  
University of Modena and Reggio Emilia, Italy;  
J. Du, University of North Texas, United States  
**Structural insight on electrical conductivity  
in lithium vanadium phosphate glasses by  
molecular dynamics simulations**
- 15.10 Coffee break
- 15.40 **PLENARY LECTURE MOREY AWARD  
in Europa Saal**
- 16.20 M. Vogel, M. Haaks, J. Gabriel, Technische  
Universität Darmstadt, Germany;  
S. Martin, Iowa State University of Science &  
Technology, United States  
**Combining field-cycling relaxometry and  
stimulated-echo experiments: A powerful-  
approach to study ion dynamics in solid-state  
electrolytes (invited)**
- 17.00 U. Fotheringham, M. Kunze, M.-L. Reich,  
M. Schneider, SCHOTT AG, Germany  
**Considerations on ion conducting glasses  
and crystals**
- 17.20 End of session

### III. Health, Medical, Biological Aspects – Fundamentals and Application

Conference room K3

#### Session III.2 Scaffolds for bone tissue engineering

Chair: Prof. Aldo Roberto Boccaccini, Erlangen, Germany  
Prof. Edgar Dutra Zanotto, São Paulo, Brazil

13.30 E. Dutra Zanotto, CeRTEV, Brazil; O. Peitl, CeRTEV - UFSCar, Brazil;  
M. Trevelin Souza, M. Crovace, C. Chinaglia, R. Siqueira, LaMaV - UFSCar, Brazil;  
A. Rodrigues, CeRTEV - UFSCar, Brazil;  
A. Boccaccini, University of Erlangen - Nuremberg, Germany;

L. Hench, University of Florida, United States

**BioSilicate – a multipurpose, highly bioactive glass-ceramic**

13.50 A. Nommeots-Nomm, Imperial College, United Kingdom;  
C. Mitchell, University of Ulster, United Kingdom;  
R. Law, Imperial College, United Kingdom;  
P. D. Lee, University of Manchester, United Kingdom;  
J. Jones, Imperial College, United Kingdom

**Porous bioactive glass foam scaffolds: Comparison of 3 compositions**

14.10 S. Eqtésadi, University of Extremadura, Spain;  
A. Motealleh, PhD student in Material Science and Engineering, Spain;  
P. Miranda Gonzalez, A. Pajares Vicente, University of Extremadura, Spain

**Improving mechanical properties of robocast 45S5 Bioglass® scaffolds by polymer-melt infiltration**

14.30 L. Esteban, Consejo Superior de Investigaciones Científicas, Spain;  
K. Zheng, A. Boccaccini, University of Erlangen-Nuremberg, Germany;  
J. Moya, Consejo Superior de Investigaciones Científicas, Spain;  
A. Díaz, B. Cabal, R. Torrecillas, Nanomaterials and Nanotechnology Research Center, Spain

**Bone tissue scaffolds based on biocompatible and biocide soda-lime glasses**

14.50 J. Du, Y. Xiang, University of North Texas, United States  
**Effect of SrO and ZnO on the structure and diffusion of bioactive glasses**

15.10 Coffee break

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- 15.40      **PLENARY LECTURE MOREY AWARD  
in Europa Saal**
- 16.20      A. Motealleh, S. Eqtesadi, P. Miranda Gonzalez,  
A. Pajares Vicente, University of Extremadura, Spain  
**Optimizing processing of 13-93 bioactive glass  
fabricated by robocasting method**
- 16.40      A. Boccaccini, A. Hoppe, D. Hiller, University of  
Erlangen-Nuremberg, Germany;  
S. N. Rath, Indian Institute of Technology, India;  
A. Arkudas, University of Erlangen-Nuremberg,  
Germany;  
U. Kneser, BG Klinik Ludwigshafen, Germany;  
R.E. Horch, University of Erlangen-Nuremberg,  
Germany  
**Cu-releasing bioactive glass (type 45S5)  
derived scaffolds for bone tissue engineering**
- 17.00      S. Jung, MO-SCI Corporation, United States  
**A bridge between scaffold design and  
implant design**
- 17.20      A. Negahi Shirazi, N. Mohamad Kalis, F. Dehghani,  
University of Sydney, Australia  
**Fabrication of bioactive hydrogels for  
biomedical applications**
- 17.40      End of session

## IV.A Fundamentals of the Glassy State and Amorphous Materials

Conference room K1

### Session IV.A5 Diffusion & ion exchange

Chair: N.N.

- 13.30 H. A. Schaeffer, German Society of Glass Technology (DGG), Germany (Keynote)  
**Diffusion phenomena in silica glass – revisited**
- 13.50 A.-M. Welsch, H. Behrens, U. Bauer, S. Ross, Leibniz Universität Hannover, Germany  
**Lithium mobility in Li<sub>2</sub>O-SiO<sub>2</sub> and Li<sub>2</sub>O-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> type glasses**
- 14.10 V. Leboeuf, J. P. Blondeau, D. De Sousa Meneses, CEMHTI, France  
**Kinetic and structural characterization of potassium ionic exchange in silicate glass**
- 14.30 P. Kreski, A. Varshneya, G. Olson, Saxon Glass Technologies, Inc., United States  
**Buildup and relaxation of surface compression in chemically strengthened glass**
- 14.50 P. Kreski, Alfred University, United States; A. Varshneya, Saxon Glass Technologies, Inc., United States; A. Cormack, Alfred University, United States  
**High temperature relaxation of alkali stuffed silicate glasses by molecular dynamics simulations**
- 15.10 Coffee break
- 15.40 **PLENARY LECTURE MOREY AWARD in Europa Saal**

### Session IV.A6 Elastic properties, fracture and durability

Chair: Prof. Tanguy Rouxel, Rennes, France

- 16.20 E. Ronchetto, R. K. Brow, Missouri University of Science and Technology, United States; T. Clark, Owens-Illinois, Inc., United States  
**Aging and fatigue of soda lime silicate glass fibers (Keynote)**



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- 16.40 K. Philipps, RWTH Aachen University – Institute of Mineral Engineering, Germany;  
R. P. Stoffel, RWTH Aachen University – Institute of Inorganic Chemistry, Germany;  
R. Conradt, RWTH Aachen University – Institute of Mineral Engineering, Germany;  
R. Dronskowski, RWTH Aachen University – Institute of Inorganic Chemistry, Germany  
**Investigation of thermomechanical behaviour of multicomponent oxide glasses**
- 17.00 M. Guerette, L. Huang, rpi, United States  
**Structural and elastic properties of bent silica fiber**
- 17.20 B. Mantsi, UPMC – Paris 6, France;  
A. Tanguy, UCB – Lyon 1, France  
**Numerical experimentation of mechanical behaviour: Silicate versus sodo-silicate**
- 17.40 End of session

## IV.B Fundamentals of the Glassy State and Amorphous Materials

Conference room K2

### Session IV.B7 Glass structure & glass formation III

Chair: Prof. Pierre Lucas, Tucson, United States

13.30 R. Youngman, B. Aitken, Corning Incorporated, United States (Keynote)

#### **B-P association in network glasses**

13.50 C. Mugoni, G. Brogna, M. Montorsi, University of Modena and Reggio Emilia, Italy;  
H. Jain, Lehigh University, United States;  
A. Kovalsky, Austin Peay State University, United States;  
C. Siligardi, University of Modena and Reggio Emilia, Italy

#### **Structure-property relationships in copper lithium phosphate glasses**

14.10 M. Potuzak, E. A. King, Corning Incorporated, United States

#### **Sodium containing boro- and phosphoaluminosilicate glasses with systematic variation of the $[\text{Al}_2\text{O}_3]/[\text{SiO}_2]$ ratio – examples of the mixed network former effect**

14.30 M. Sundararajan, C. Ihalawela, D. Drabold, G. Chen, Ohio University, United States

#### **Intermediate-range order in Ti-doped mesoporous silica**

14.50 L. Koudelka, P. Mosner, A. Racicky, I. Rösslerova, University of Pardubice, Czech Republic;  
L. Monatgne, B. Revel, University of Lille, France

#### **Behaviour of indium oxide in zinc phosphate and borophosphate glasses**

15.10 Coffee break

15.40 **PLENARY LECTURE MOREY AWARD in Europa Saal**

### Session IV.B8 Glass structure & glass formation IV

Chair: Dr. Marcel Potuzak, Corning, United States

16.20 V. Minaev, S. Timoshenkov, V. Vasiliev, V. Kalugin, D. Mukimov, National Research University of Electronic Technology, Russian Federation

#### **Physical-chemical nature of glass transition process**

- 
- 16.40 U. Bauer, H. Behrens, Institut für Mineralogie, Leibniz Universität Hannover, Germany;  
M. Fechtelkord, Institut für Geologie, Mineralogie und Geophysik, Ruhr Universität Bochum, Germany  
**Structural implications of water- and boron speciation in soda-lime borate glasses**
- 17.00 M. Hunault, G. Calas, A. Juhin, University Pierre and Marie Curie, Institute of Mineralogy, France  
**Color of Co<sup>2+</sup> in alkali borate glasses: revisiting Paul&Douglas**
- 17.20 E. A. Chechetkina, Institute of General and Inorganic Chemistry, Russian Federation  
**The myth of reproducibility in glass-forming liquids**
- 17.40 I. Kabalci, Harran University, Turkey; P. Kostka, Institute of Rock Structure and Mechanics, Academy of Sciences of the Czech Republic, Czech Republic;  
J. Zavadil, Institute of Photonics and Electronics, Academy of Science CR, Czech Republic;  
N. Ozturk Korpe, Eskisehir Osmangazi University, Turkey  
**Microstructural and physical properties of TeO<sub>2</sub>-ZnO-TiO<sub>2</sub> glasses**
- 18.00 End of session

## V. Optical Materials and Devices – Fundamentals and Application

Conference room K4/5

### Session V.3 Sensors

- Chair: Prof. Kathleen A. Richardson, Orlando,  
United States
- 13.30 B. Bureau, S. Cui, R. Chahal, C. Boussard-Pledel,  
V. Nazabal, Université de Rennes 1, France;  
P. Lucas, University of Arizona, United States;  
O. Loreal, Université de Rennes 1, France;  
O. Sire, Université de Bretagne Sud, France;  
H. Tariel, DIAFIR S.A., France;  
J. Lucas, Université de Rennes 1, France  
**Chalcogenide glass optical fibers for  
mid-infrared bio-sensing (invited)**
- 14.00 F. Vollmer, Max Planck Institute for the Science of  
Light, Germany (invited)  
**Taking detection to the limit: Optical bio-  
sensing with high Q glass microcavities**
- 14.30 S. Degioanni, D. Vouagner, A.-M. Jurdyc,  
Institut Lumière Matière, France  
**Amorphous matrix oxides in contact with  
gold nanostructures: Application to fiber  
optic sensors**
- 14.50 H. Lin, K. McLaughlin, Y. Chillakuru, L. Li, Y. Liu,  
University of Delaware, United States;  
S. Danto, University of Central Florida,  
United States;  
J. D. Musgraves, IRradiance Glass Inc.,  
United States;  
K. Richardson, University of Central Florida,  
United States;  
J. Hu, University of Delaware, United States  
**On-chip mid-IR cavity enhanced chemical  
sensing using chalcogenide glass resonators**
- 15.10 Coffee break
- 15.40 **PLENARY LECTURE MOREY AWARD  
in Europa Saal**

**Session V.4 Photoinduced phenomena**

Chair: Prof. Barry Luther-Davies, Canberra, Australia

- 16.20 T. Cardinal, Y. Petit, ICMCB, France;  
K. Mishchik, N. Marquestaut, LOMA, France;  
P. Hee, ICMCB & COPL, France;  
E. Fargin, ICMCB, France;  
L. Canioni, LOMA, France;  
M. Vangheluwe, LOMA & COPL, France;  
M. Dussauze, V. Rodriguez, ISM, France;  
Y. Messaddeq, R. Vallée, COPL, France  
**Photosensitive silver glass for new functionality (invited)**
- 17.00 T. Seuthe, Fraunhofer IKTS, Germany;  
M. Grehn, TU Berlin, Germany;  
A. Mermillod-Blondin, MBI Berlin, Germany;  
J. Bonse, BAM Berlin, Germany;  
M. Eberstein, Fraunhofer IKTS, Germany  
**Femtosecond-laser induced structural changes of silicate glasses investigated by  $\mu$ -Raman spectroscopy**
- 17.20 O. Caulier, Université du Littoral Côte d'Opale, France;  
D. Le Coq, Université de Rennes 1, France;  
E. Bychkov, P. Masselin, Université du Littoral Côte d'Opale, France  
**New approach of waveguide inscription by femtosecond laser: Application into a bulk of As<sub>2</sub>S<sub>3</sub>**
- 17.40 D. Savytskyy, Lehigh University, United States;  
K. Atwater, University of Maryland, United States;  
B. Knorr, V. Dierolf, H. Jain, Lehigh University, United States  
**Laser-fabrication of ferroelectric Sb<sub>2</sub>S<sub>3</sub> single crystal on the surface of Sb-S-I glasses**
- 18.00 End of session

# I. Advances in the Fusion and Processing of Glass

Europa Saal

## Session I.3 Energy efficiency, flue gas chemistry, combustion, and heat transfer

Chair: Prof. Ruud Beerkens, Eindhoven, The Netherlands

08.30 R. Weisenburger Lipetz, Glass Manufacturing Industry Council, United States (invited)  
**Glass manufacturing industry council – coordinating glass industry technical initiatives**

08.50 E. Muijsenberg, Glass Service, Czech Republic  
**Overview of primary NO<sub>x</sub> reduction techniques**

09.10 M. Märtin, GWI Gas- und Wärme-Institut Essen e.V., Germany;  
 B. Fleischmann, HVG Hüttentechnische Vereinigung der Deutschen Glasindustrie e.V., Germany;  
 J. Benthin, A. Giese, GWI Gas- und Wärme-Institut Essen e.V., Germany;  
 J. Bauer, HVG Hüttentechnische Vereinigung der Deutschen Glasindustrie e.V., Germany  
**Diluted combustion in regenerative glass melting furnaces to reduce NO<sub>x</sub> emissions and fuel consumption**

09.30 D. Lalart, E. Sénéchal, Arc International, Arques France, France;  
 H. Abensour, Saint-Gobain Conceptions Verrières, Aubervilliers, France;  
 A. Kasper, Saint-Gobain Sekurit, Herzogenrath, Germany  
**Operating experience of the ceramic candle waste gas filter in the glass industry**

09.50 Coffee break

10.20 **PLENARY LECTURE KREIDL AWARD in Europa Saal**

11.00 H. van Limpt, A. Suárez-Barcelona, CelSian Glass & Solar, The Netherlands; E. de Wit, HyGear BV, The Netherlands  
**Thermo-chemical-recuperator technology: A big step towards energy efficient glass melting**

11.20 H. Kobayashi, K.-T. Wu, R. Bell, Praxair, Inc., United States  
**Thermo-chemical regenerator: A high efficiency heat recovery system for oxy-fuel fired glass furnaces**

- 11.40 T. Struppert, Neue Glaswerke Großbreitenbach GmbH & Co. KG, Werk Steinbach am Wald, Germany  
**Experiences with batch & cullet preheating systems in container glass production**
- 12.00 J. Leicher, A. Giese, GWI Gas- und Wärme-Institut Essen e.V., Germany  
**Impact of gas quality variations on combustion processes in glass melting furnaces**
- 12.20 Lunch buffet

## II. Energy Applications of Glass – Fundamentals and Application

Brüssel Saal

### Session II.3 Batteries and ion conductive glasses III

- Chair: Prof. Joachim Deubener, Clausthal-Zellerfeld, Germany  
Prof. Masahiro Tatsumisago, SAKAI Osaka, Japan
- 08.30 Y. Yue, Aalborg University, Denmark;  
W. He, Qilu University of Technology, China  
**Role of disorder in enhancing lithium-ion battery performance (invited)**
- 09.10 W. Wang, J. Kieffer, University of Michigan, United States  
**Sol-gel derived lithium ion conducting organic-inorganic hybrid materials for electrolyte application**
- 09.30 N. Rosenkiewitz, Institute of Non-Metallic Materials, Clausthal University of Technology, Germany;  
J. Schuhmacher, M. Bockmeyer, Schott AG, Germany;  
J. Deubener, Institute of Non-Metallic Materials, Clausthal University of Technology, Germany  
**Characterization of sol-gel derived lithium ion conductors in the Li<sub>2</sub>O-ZrO<sub>2</sub>-La<sub>2</sub>O<sub>3</sub> system: From amorphous materials to garnet-type**
- 09.50 Coffee break
- 10.20 **PLENARY LECTURE KREIDL AWARD in Europa Saal**
- 11.00 M. Schneider, M.-L. Reich, M. Kunze, W. Schmidbauer, U. Dahlmann, SCHOTT AG, Germany  
**Influence of microstructure on ionic conductivity in Li<sub>2</sub>O-Al<sub>2</sub>O<sub>3</sub>-TiO<sub>2</sub>-P<sub>2</sub>O<sub>5</sub> glass-ceramics**
- 11.20 Y. Cui, M. M. Mahmoud, M. Rohde, C. Ziebert, H. J. Seifert, Karlsruher Institut für Technologie (KIT), Germany  
**Phosphate based glass-ceramic for high temperature lithium-ion batteries**
- 11.40 K. O. Hofmann, Institut für Festkörperphysik, Technische Universität Darmstadt, Germany;  
M. Schneider, M.-L. Reich, M. Kunze, Schott AG, Mainz, Germany;  
M. Vogel, Institut für Festkörperphysik, Technische Universität Darmstadt, Germany  
**Electrochemical properties of lithium-ion conducting glass ceramics with LiSiCon structure**
- 12.20 Lunch buffet



### III. Health, Medical, Biological Aspects – Fundamentals and Application

Conference room K3

#### Session III.3 Compositional design of bioactive glass

- Chair: Prof. Delia S. Brauer, Jena, Germany  
Dr. José Ferreira, Aveiro, Portugal
- 08.30 L. Hupa, Åbo Akademi University, Finland  
**Glasses releasing therapeutic ions in a controlled manner – How to tailor them? (invited)**
- 09.10 M. Tylkowski, Otto Schott Institut, Germany;  
D. S. Brauer, Otto-Schott-Institut, Germany  
**Effects of lithium substitution in bioactive glasses**
- 09.30 K. Goetschius, V. Samaranayake,  
R. K. Brow, Missouri S&T, United States  
**Compositional design of borate bioactive glasses**
- 09.50 Coffee break
- 10.20 **PLENARY LECTURE KREIDL AWARD  
in Europa Saal**
- 11.00 E. Vernè, Politecnico di Torino, Italy  
**New approaches for surface tailoring of bioactive glasses (invited)**
- 11.40 D. Groh, F. Döhler, Otto-Schott-Institut,  
Friedrich-Schiller-Universität Jena, Germany;  
J. Bierlich, J. Kobelke, IPHT Jena, Germany;  
D. S. Brauer, Otto-Schott-Institut,  
Friedrich-Schiller-Universität Jena, Germany  
**New bioactive glasses with low crystallisation tendencies for fibre drawing**
- 12.00 C. Vaid, S. Murugavel, University of Delhi, India  
**Mesoporous bioactive glass and glass-ceramics: Influence of the local structure on in-vitro bioactivity**
- 12.20 Lunch buffet

## IV.A Fundamentals of the Glassy State and Amorphous Materials

Conference room K1

### Session IV.A9 Constraint theory & simplistic modelling I

- Chair: Prof. Lothar Wondraczek, Jena, Germany
- 08.30 M. M Smedskjaer, Aalborg University, Denmark  
**Towards a topological basis for the properties of compressed inorganic glasses (invited)**
- 09.10 B. Poletto Rodrigues, L. Wondraczek, Otto Schott Institut für Materialforschung, FSU Jena, Germany  
**Modifier constraints on Eu-Mn-Sr borate glasses**
- 09.30 M. Bauchy, D. Dieter, R. Pellenq, M. Buehler, MIT, United States  
**Topological constraints and reactivity of calcium alumino silicates fly ashes**
- 09.50 Coffee break
- 10.20 **PLENARY LECTURE KREIDL AWARD in Europa Saal**

### Session IV.A10 Constraint theory & simplistic modelling II

- Chair: Dr. Gang Chen, Athens, United States
- 11.00 C. Hermansen, Y.-Z. Yue, Aalborg University, Denmark  
**Topological modeling of phosphate and borophosphate glass**
- 11.20 O. Laurent, M. Micoulaut, UPMC, France  
**Topological constraints and rigidity of soda-lime silicates**
- 11.40 J. Mauro, Corning Incorporated, United States  
**Statistics of modifier distributions in mixed network glasses**
- 12.00 M. Bauchy, MIT, United States; M. Micoulaut, LPTMC, UPMC, Paris, United States  
**Percolative heterogeneous topological constraints in glass-forming liquids**
- 12.20 Lunch buffet

## IV.B Fundamentals of the Glassy State and Amorphous Materials

Conference room K2

### Session IV.B11 Glass structure & glass formation V

Chair: Ellyn King, Corning, United States

08.30 S. Inaba, Tokyo Institute of Technology, Japan;  
H. Hosono, S. Ito, Tokyo Institute of Technology, Japan

#### **Origin of entropic elasticity in phosphate glass**

08.50 M. Chassé, L. Galois, Institut de minéralogie, de physique des matériaux et de cosmochimie (IMPIC), France;  
N. Métrich, Institut de physique du globe de Paris (IPGP), France;  
G. Lelong, G. Calas, Institut de minéralogie, de physique des matériaux et de cosmochimie (IMPIC), France

#### **New insights into iron speciation in natural glasses: a microspectrophotometric study**

09.10 P. Lucas, University of Arizona, United States;  
B. Bureau, Université de Rennes 1, France;  
M. Deschamps, CNRS-Orleans, France

#### **Experimental confirmation of chemical order in As-Se glasses**

09.30 H. Flores-Ruiz, UPMC, France;  
M.-V. Coulet, Université Aix-Marseille, France;  
A. Piarristeguy, Université Montpellier II, France;  
M. Micoulaut, UPMC, France;  
M. Johnson, G. Cuello, ILL Grenoble, France;  
A. Pradel, Université Montpellier II, France;  
C. Bichara, Université Aix-Marseille, France

#### **Structure of Ge-Sb-Te and Ge-Ga-Te melts from first principles molecular dynamics simulations and neutron diffusion**

09.50 Coffee break

10.20 **PLENARY LECTURE KREIDL AWARD in Europa Saal**

**Session IV.B12 Clustering and particle formation**

Chair: N.N.

- 11.00 F. Cormack, A. Cormack, W. Lacourse,  
Alfred University, United States  
**Experimental and computational investigation of photosensitive glasses containing silver nanoparticles**
- 11.20 C. Saiyasombat, H. Jain, Lehigh University,  
United States  
**Mechanism of formation of Au nanoparticles in silicate glasses by in situ X-ray absorption and optical spectroscopy**
- 11.40 A. Winterstein-Beckmann, S. Fuhrmann,  
M. Kömm, L. Wondraczek, Otto-Schott-Institute,  
Friedrich-Schiller-University, Jena, Germany  
**Terbium-dispersion and microscopic ordering effects in magneto-optical terbium boro-germanate glasses**
- 12.00 J. P. Rino, L. G. Gonçalves, Universidade Federal  
de São Carlos, Brazil  
**Glass forming ability in Pd<sub>45</sub>Ni<sub>55</sub> and Pd<sub>35</sub>Ni<sub>55</sub>Pt<sub>10</sub> metallic glasses**
- 12.20 Lunch buffet

## V. Optical Materials and Devices – Fundamentals and Application

Conference room K4/5

### Session V.5 Luminescence II

- Chair: T. Cardinal, Bordeaux, France
- 08.30 M. Nalin, Institute of Chemistry, Brazil  
**Optical properties of rare earth doped oxide glasses and glass-ceramics containing metallic nanoparticles (invited)**
- 09.10 Y. Yang, Y. Wu, Alfred University, United States  
**Rare-earth doped YAG optical ceramics fabricated through a new gelcasting system (invited)**
- 09.30 B. Knorr, A. Stone, H. Jain, V. Dierolf, Lehigh University, United States  
**Structural and spectroscopic properties of rare earth doped crystal-in-glass waveguides as influenced by the initial glass composition**
- 09.50 Coffee break
- 10.20 **PLENARY LECTURE KREIDL AWARD in Europa Saal**

### Session V.6 Optical material synthesis II

- Chair: Prof. Laurent Calvez, Rennes, France
- 11.00 A. Masuno, The University of Tokyo, Japan;  
T. Iwata, Shibaura Institute of Technology, Japan;  
H. Inoue, Y. Watanabe, The University of Tokyo, Japan  
**Optical properties of La<sub>2</sub>O<sub>3</sub>-B<sub>2</sub>O<sub>3</sub> binary glasses prepared by containerless processing**
- 11.20 S. Cui, C. Boussard-Plédel, B. Bureau, X.-H. Zhang, J. Lucas, University of Rennes 1, France  
**Preparation and investigation of high purity Ge-Te-Agl glass single index fiber for far-infrared application**
- 11.40 P. Manns, M. Gremmelspacher, Fraunhofer-Institut für Werkstoffmechanik IWM, Germany;  
G. Spieß, Fraunhofer Institute for Mechanics of Materials IWM, Germany;  
T. Schmid, Fraunhofer-Institut für Solare Energiesysteme ISE, Germany  
**Molded glass lenses for concentrating photovoltaic modules**
- 12.00 J. Zwanziger, J. Galbraith, Dalhousie University, Canada  
**Dispersion of photoelasticity in glass**
- 12.20 Lunch buffet

# I. Advances in the Fusion and Processing of Glass

Europa Saal

## Session I.4 Furnace design and advanced melting concepts

- Chair: Dr. Hisashi Kobayashi, Danbury, United States
- 13.30 T. Yano, Tokyo Institute of Technology, Japan;  
T. Watanabe, Kyushu University, Japan;  
O. Sakamoto, Asahi Glass Co., Ltd., Japan;  
K. Sato, New Glass Forum, Japan; S. Inoue,  
National Institute for Materials Science, Japan  
**In-flight vitrification process of granular  
powders in in-flight melting technology (invited)**
- 14.10 G. Lubitz, Vetroconsult AG, Switzerland  
**Fluid bed processing – a new way of  
preheating batch and cullet**
- 14.30 M. Lindig, Sorg, Germany  
**Melting efficiency improvements with waste  
heat recovery- an evaluation**
- 14.50 A. Lankhorst, CelSian Glass & Solar,  
The Netherlands;  
A. Habraken, CelSian, The Netherlands;  
M. Rongen, CelSian Glass & Solar, The Netherlands  
**Modeling the dynamic behavior of regene-  
rative glass melting furnaces: The impact on  
mixing and quality**
- 15.10 Coffee break
- 15.40 **PLENARY LECTURE STOOKEY AWARD  
in Europa Saal**
- 16.20 B. Schmalenbach, R. Bei, RHI GLAS GmbH,  
Germany  
**Glass defects from superstructure refractories  
– solutions and improvements**
- 16.40 Y. Bayram, A. Ruege, E. Walton, PaneraTech, Inc.,  
United States;  
G. Mumcu, University of South Florida,  
United States;  
R. Burkholder, The Ohio State University,  
United States;  
E. Sperry, D. Cetnar, Libbey Glass, United States;  
S. Weiser, Owens-Illinois, United States  
**Furnace asset life optimization with structural  
health monitoring sensors**

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- 17.00 S. Soubeih, U. Luedtke, B. Halbedel,  
Ilmenau University of Technology, Germany  
**Using numerical simulation to study the effects of how an external magnet system improves the residence time distribution on glass melting tanks**
- 17.20 I. Hooftman, LANXESS nv, Belgium; A. Francis,  
**U. Iyoha, J. de Diego, Praxair, Spain**  
**Operational experience at LANXESS nv (Kallo) of Praxair's new oxyfuel forehearth burner technology for glass forehearths**
- 17.40 G. Bergmann, N.-H. Löber, J. Simon,  
H. Müller-Simon, HVG Hüttentechnische Vereinigung der Deutschen Glasindustrie e.V., Germany  
**The influence of spout and delivery characteristics on the gobs – Results of measurements and modelling – Part 1**
- 18.00 End of session

## II. Energy Applications of Glass – Fundamentals and Application

Brüssel Saal

### Session II.4 Sealants and solder glasses

- Chair: Dr. Ralf Müller, Berlin, Germany
- 13.30 R. Brow, Missouri University of Science and Technology, United States  
**Sealing glasses for electrochemical devices (invited)**
- 14.10 C. Thieme, C. Rüssel, Otto-Schott-Institut für Materialforschung, Germany  
**Crystallizing glass seals with high coefficients of thermal expansion and strong adherence to metals**
- 14.30 S. Reinsch, S. Fest, R. Müller, BAM Federal Institute for Materials Research and Testing, Germany  
**Effects of milling on sinter-crystallization of solder glasses for SOFC**
- 14.50 C.-W. Kim, MO-SCI Corporation, United States; J. H. Hsu, Missouri University of Science and Technology, United States; J. Szabo, R. Crouch, R. Baird, MO-SCI Corporation, United States; R. Brow, Missouri University of Science and Technology, United States  
**Viscous sealing glasses for solid oxide fuel cells**
- 15.10 Coffee break
- 15.40 **PLENARY LECTURE STOOKEY AWARD in Europa Saal**
- 16.20 M. Müller, B. Durschang, M. Kilo, Fraunhofer-Institut für Silicatforschung ISC, Germany; S. Hornauer, ElringKlinger AG, Germany  
**(In situ) – Analyses of new glass-ceramic sealants for the use in solid oxide fuel cells SOFC**
- 16.40 V. Boffa, Aalborg University, Denmark; G. Magnacca, Turin University, Italy; Y. Yue, Aalborg University, Denmark  
**Hydrogen-selective silica-base membranes: Structure, permeability and stability**
- 17.00 I. Reimanis, I. Cornejo, S. Ramalingam, Colorado Center for Advanced Ceramics, Department of Metallurgical and Materials Engineering, Colorado School of Mines, United States  
**Making glass from food waste**
- 17.20 End of session



### III. Health, Medical, Biological Aspects – Fundamentals and Application

Conference room K3

#### Session III.4 Bioactive glass in bone and tissue repair

- Chair: Dr. Richard Brow, Rolla, United States  
Dr. Alastair N. Cormack, Alfred, United States
- 13.30 A. P. Tomsia, Lawrence Berkeley National Laboratory, United States; Q. Fu, Corning Incorporated, United States  
**Regeneration of large segmental bone defects with bioactive glass scaffolds (invited)**
- 14.10 M. Rahaman, Missouri University of Science and Technology, United States; L. Bi, L. Bonewald, University of Missouri-Kansas City, United States; S. Bal, University of Missouri-Columbia, United States  
**Repair of structural bone defects using strong porous bioactive glass scaffolds**
- 14.30 L. Drago, C. Vassena, IRCCS Galeazzi Institute, Italy;  
S. Fenu, National Institute of Molecular Genetics, Italy;  
E. de Vecchi, V. Signori, C. L. Romanò, IRCCS Galeazzi Institute, Italy  
**In vitro antibiofilm activity of bioactive glass BAG-S53P4**
- 14.50 M. Bruno, M. Miola, Politecnico di Torino, Italy;  
O. Bretcanu, Newcastle University, United Kingdom; A. Cochis, L. Rimondini, University of Eastern Piedmont, Italy;  
R. Gerbaldo, F. Laviano, E. Vernè, Politecnico di Torino, Italy  
**Development of innovative PMMA bone cements loaded with bioactive and ferrimagnetic phase: morphological, calorimetric, mechanical and in vitro characterization**
- 15.10 Coffee break
- 15.40 **PLENARY LECTURE STOOKEY AWARD in Europa Saal**

#### Session III.5 Round-table discussion on key issues and future directions in glasses for medical applications

- Chair: Prof. Aldo Boccaccini, Erlangen, Germany  
Prof. Mohamed Rahaman, Rolla, United States
- 16.20-17.50 Round-table discussion

## IV.A Fundamentals of the Glassy State and Amorphous Materials

Conference room K1

### Session IV.A13 Chalcogenides I

- Chair: Prof. Steve W. Martin, Ames, United States
- 13.30 M. Wuttig, RWTH Aachen, I. Physikalisches Institut, Germany (invited)  
**Phase change materials: From optical data storage to novel electronic memories**
- 14.10 M. Upadhyay, S. Murugavel, University of Delhi, India  
**Study of microstructure and defects in phase change memory materials**
- 14.30 M. Salinga, RWTH Aachen University, I. Physikalisches Institut IA, Germany  
**Fragility and glass transition in phase change materials**
- 14.50 P. Lucas, G. Coleman, O. Gulbitten, Q. Hao, University of Arizona, United States; B. Bureau, University of Rennes 1, France; S. Cui, C. Boussard-Pledel, University of Rennes, France  
**Doped glassy semiconductors for application in thermoelectric devices**
- 15.10 Coffee break
- 15.40 **PLENARY LECTURE STOOKEY AWARD in Europa Saal**

### Session IV.A14 Chalcogenides II

- Chair: Prof. Pierre Lucas, Tucson, United States
- 16.20 J. Troles, P. Toupin, University of Rennes 1, France; L. Brilland, Perfos, R&D platform of photonics Bretagne, France; C. Caillaud, University of Rennes 1, France; D. Mechin, Perfos, R&D platform of photonics Bretagne, France; C. Boussard, B. Bureau, J.-L. Adam, University of Rennes 1, France  
**Which glasses, which glass structures for the fabrication of chalcogenide microstructured optical fibers for mid-IR sensing? (invited)**

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- 17.00 E. Koontz, Clemson University, University of Central Florida, United States;  
P. Wachtel, University of Central Florida, Irradiance Glass, United States;  
R. Loucks, Alfred University, United States;  
K. Richardson, University of Central Florida, Clemson University, United States  
**Compositional dependence of structural relaxation behavior in the  $As_xSe_{1-x}$  and  $GeyAs_xSe_{1-x-y}$  systems characterized by length dilatometry**
- 17.20 Y. Gueguen, LARMAUR ERL CNRS 6274, France;  
V. Keryvin, LIMATB EA 4250, France;  
J.-C. Sangleboeuf, LARMAUR ERL CNRS 6274, France; P. Lucas, Department of Materials Science and Engineering, University of Arizona, United States; E. A. King, Science and Technology Division, Corning Inc, Corning NY, United States;  
B. Bureau, Glass and Ceramic Group, SCR UMR CNRS 6226, France  
**Rheology of chalcogenide glasses under light irradiation (invited)**
- 17.40 End of session

## IV.B Fundamentals of the Glassy State and Amorphous Materials

Conference room K2

### Session IV.B15 Relaxation & extreme conditions I

Chair: Prof. Lothar Wondraczek, Jena, Germany

- 13.30 D. de Ligny, FAU Erlangen-Nürnberg, Germany;  
C. Sonnevile, Université de Montréal, Canada;  
C. Martinet, A. Mermet, Université Lyon 1, France;  
F. Angeli, S. Peugeot, S. Schuller, CEA Marcoule, France;  
S. Juodkazis, Swinburne University of Technology, Australia  
**Glasses at extreme conditions: high pressure and hyper-quenching (invited)**
- 14.10 B. Champagnon, Institut Lumière Matière, UMR5306 Université Lyon 1-CNRS, Villeurbanne, France  
**Densified silica : comparison of the structures corresponding to different densification paths**
- 14.30 A. Winterstein-Beckmann, D. Möncke, Otto-Schott-Institute, Friedrich-Schiller-University, Jena, Germany;  
D. Palles, Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece;  
P. Malchow, Institute of General Materials Properties, Department Material Science, University Erlangen-Nuremberg, Erlangen, Germany;  
K. Durst, Physical Metallurgy, Department Material Science, TU Darmstadt, Germany;  
E.I. Kamitsos, Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece;  
L. Wondraczek, Otto-Schott-Institute, Friedrich-Schiller-University, Jena, Germany  
**Structure of densified Na<sub>2</sub>O-B<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> glasses Part I: Indentation – room temperature compression**
- 14.50 S. Fuhrmann, Otto-Schott Institute for Materials Research, Germany;  
T. Deschamps, Institut Lumière Matière, UMR5306 Université Lyon 1-CNRS, France;  
S. Widgeon, Dept. of Chemical Engineering and Materials Science, UC Davis, United States;  
D. De Ligny, B. Champagnon, Institut Lumière Matière, UMR5306 Université Lyon 1-CNRS, France;  
S. Sen, Dept. of Chemical Engineering and Materials Science, UC Davis, United States;

L. Wondraczek, Friedrich-Schiller-Universität Jena,  
Otto-Schott-Institut, Germany

**Structure of densified Na<sub>2</sub>O-B<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>  
glasses Part II: Isostatic Compression –  
freezing of fictive pressure**

15.10 Coffee break

15.40 **PLENARY LECTURE STOOKEY AWARD  
in Europa Saal**

**Session IV.B16 Relaxation & extreme conditions II**

Chair: N.N.

16.20 G. Mckenna, J. Zhao, Texas Tech University,  
United States (invited)

**Testing time-scale divergence in glasses: Aging  
routes, fossil resins and other questions**

17.00 M. Tomozawa, P. Lezzi, RPI, United States

**Surface stress relaxation of silicate glasses**

17.20 T. V.R. Marques, A. Cabral, Federal Institute  
of Maranhao, Brazil

**Influence of the heating rates on the  
correlation between glass-forming ability  
(GFA) and glass stability (GS) parameters**

17.40 T. Palenta, S. Fuhrmann, Otto-Schott Institute for  
Materials Research, Friedrich-Schiller University  
Jena, Germany;

W. Schwieger, Institute of Chemical Reaction  
Engineering, Friedrich-Alexander University  
Erlangen-Nuremberg, Germany;

L. Wondraczek, Otto-Schott Institute for Materials  
Research, Friedrich-Schiller-University Jena, Germany

**Kinetic investigation on zeolite collapse**

18.00 N. Greaves, Department of Materials Science &  
Metallurgy, University of Cambridge,  
United Kingdom;

J.-C. Tan, Department of Engineering Science,  
University of Oxford, United Kingdom;

Y. Yue, Section of Chemistry, Aalborg University,  
Denmark; T. Bennett, A. Cheetham, Department of  
Materials Science & Metallurgy, University of  
Cambridge, United Kingdom;

Z. Zhongfu, School of Materials Science and  
Engineering, Shanghai University, United Kingdom

**Superstrong supercooled zeolitic hybrid  
frameworks and topological melting**

18.20 F. Song, Z. Zhongfu, N. Greaves, Institute of  
Mathematics, Physics and Computer Science,  
Aberystwyth University, United Kingdom

**Collapse dynamics of neodymium  
ion-exchanged zeolite Y**

18.40 End of session

## V. Optical Materials and Devices – Fundamentals and Application

Conference room K4/5

### Session V.7 Non linear optical materials and properties

Chair: Prof. Johann Troles, Rennes, France

- 13.30 B. Luther-Davies, Australian National University, Australia;  
P. Ma, The Australian National University, Australia;  
Y. Yu, X. Gai, D.-Y. Choi, Z. Yang, R. Wang,  
S. Madden, The Australian National University, Australia  
**Chalcogenide waveguides for nonlinear optics and sensing in the mid-infrared (invited)**
- 14.00 Y. Ohishi, Toyota Technological Institute, Japan  
**New prospect of high nonlinear micro-structured optical fibers (invited)**
- 14.30 K. Richardson, University of Central Florida, United States;  
J. D. Musgraves, P. Wachtel, IRradiance Glass, United States;  
A. Buff, L. Siskin, K. Chamma, University of Central Florida, United States;  
T. Mayer, The Pennsylvania State University, United States  
**Advances in mid-infrared chalcogenide glass ceramics for photonic applications**
- 14.50 P. Hee, ICMCB-CNRS, Pessac, France; COPL, Québec, Canada, France;  
R. Christensen, Department of Chemistry, University of Manitoba, Winnipeg, Canada;  
Y. Ledemi, COPL, Québec, Canada;  
M. Dussauze, ISM, Talence, France;  
T. Cardinal, E. Fargin, ICMCB-CNRS, Pessac, France;  
S. Kroeker, Department of Chemistry, University of Manitoba, Winnipeg, Canada;  
Y. Messaddeq, COPL, Québec, Canada  
**Gallate glasses: Candidates for optical applications in the near infrared**
- 15.10 Coffee break
- 15.40 **PLENARY LECTURE STOOKEY AWARD in Europa Saal**

**Session V.8 Radiation effects (joint session with symposium Nuclear Waste Forms)**

Chair: Dr. Laetitia Petit, Lohja, Finland

- 16.20 S. Novak, Department of Materials Science and Engineering, COMSET, Clemson University, Clemson, SC, USA, United States;  
V. Singh, N. Patel, Microphotonics Center, Massachusetts Institute of Technology, Cambridge, MA, USA, United States;  
J. Marro, Department of Materials Science and Engineering, COMSET, Clemson University, Clemson, SC, USA, United States;  
J. Giammarco, I. Luzinov, Department of Materials Science and Engineering, Clemson University, Clemson, SC, USA, United States;  
A. Quaranta, W. Raniero, Department of Industrial Engineering, University of Trento, Italy;  
M. Chiesa, Department of Chemistry, University of Torino, Torino, Italy;  
A. Agarwal, Microphotonics Center, Massachusetts Institute of Technology, Cambridge, MA, USA, United States;  
K. Richardson, College of Optics and Photonics, CREOL, University of Central Florida, USA, United States  
**Radiation effects in chalcogenide glass materials for planar mid-IR photonic devices**
- 16.40 J. King, R. Leonard, J. Johnson, UTSI, United States  
**LiSiBaB: Eu(II) neutron scintillator**
- 17.00 N. Johnson, S. Feller, M. Affatigato, U. Akgun, Coe College, United States  
**Development of electronically conductive glasses for resistive plate calorimeter particle detectors**
- 17.20 R. Dongol, S.K. Sundaram, Alfred University, United States  
**Corrosion behavior of borosilicate glasses for neutrino detection**
- 17.40 P. Tumurugoti, B.M. Clark, S.K. Sundaram, Alfred University, United States  
**Femtosecond pulse laser interaction with multi-phase ceramic waste forms for nuclear waste storage**
- 18.00 End of session

## VIII. Student Workshop Clear as Glass 2014

Conference room K9

### Session VIII.1 Structural and topological aspects of the mechanical properties of glass

Chair: Prof. Reinhard Conradt, Aachen, Germany

13.30 In the first part, four short introductory lectures (25 min each) will be given by prominent researchers in the field. The lecturers' names will be announced at the conference website and at the registration desk. The following key issues will be covered by the lectures: What are the relations between the categories at the atomic scale (bonds, packing, short and medium range order, connectivity, etc.) and the resulting macroscopic properties (elastic moduli, surface hardness, strength)? What can we learn, and what concepts can we apply to make better glass?

15.10 Coffee break

### 15.40 **PLENARY LECTURE STOOKEY AWARD in Europa Saal**

16.20 Lectures are followed by a "brain storming" session where students will discuss the matter in small groups. Crazy and unconventional ideas are most welcome. At the end of the workshop, each group will present their ideas and conclusions.

17.50 End of workshop



# I. Advances in the Fusion and Processing of Glass

Europa Saal

## Session I.5 Advances in modeling of glass melting and forming, comprising process control and sensors

Chair: Dipl.-Ing. Sven-Roger Kahl, Dongen,  
The Netherlands

08.30 A. Huber, Johns Manville, United States  
**Glass flow in channels for fiber production; using CFD to improve understanding and design (invited)**

08.50 A. Habraken, A. Lankhorst, R. Beerkens,  
CelSian Glass & Solar, The Netherlands  
**Modeling of glass melting and fining processes: Decisive for glass quality**

09.10 M. Eisenga, Glass Service B.V., The Netherlands  
**ES IIITM control of feeder job change – a novel TY**

09.30 P. Boehm, H. Müller-Simon, HVG Hüttentechnische  
Vereinigung der Deutschen Glasindustrie e.V.,  
Germany  
**Use of a sulfur sensor in the float glass process**

09.50 Coffee break

10.20 **PLENARY LECTURE VARSHNEYA AWARD  
in Europa Saal**

11.00 P. van Santen, L. Thielen, A. Koenraads, CelSian  
Glass & Solar BV, The Netherlands  
**On line energy balance monitoring and model  
predictive control for energy efficient and  
stable glass furnace operation**

11.20 A. Möller, Nogrid GmbH, Germany  
**How to use simulation of container glass  
forming successfully**

11.40 D. P. Hemmann, STG Combustion Control  
GmbH & Co KG, Germany  
**Model predictive Lambda Control and its  
relationship to CO monitoring**

12.00 A. J. Faber, M. van Kersbergen, CelSian  
Glass & Solar, The Netherlands  
**Industrial experiences with CO laser sensor  
for combustion control in industrial glass  
furnaces**

12.20 Lunch buffet

## II. Energy Applications of Glass – Fundamentals and Application

Brüssel Saal

### Session II.5 Glasses and thin films for solar energy conversion

- Chair: Dr. Gundula Hensch, Clausthal-Zellerfeld, Germany  
Prof. Rui Almeida, Lisbon, Portugal
- 08.30 R. Almeida, Instituto Superior Técnico, Portugal  
**Functional coatings on glass for energy applications (invited)**
- 09.10 K. H. Nielsen, T. Kittel, L. Wondraczek, Otto Schott  
Institute of Materials Research, Germany  
**Pore water content and adsorption breathing effect of nanoporous coatings on glass**
- 09.30 G. Hensch, J. Deubener, Institute of Non-Metallic  
Materials, Clausthal University of Technology,  
Germany  
**Effect of curing conditions on photocatalytic activity of antireflective coatings on solar glass**
- 09.50 Coffee break
- 10.20 **PLENARY LECTURE VARSHNEYA AWARD  
in Europa Saal**
- 11.00 L. Wondraczek, University of Jena, Germany  
**Production of biomass and fine chemicals in algae reactors: From light delivery to spectral conversion (invited)**
- 11.40 R. Bruntsch, H. Hessenkemper,  
TU Bergakademie Freiberg, Germany  
**Black glass for new energies**
- 12.00 M. Eberstein, U. Schmidt, R. Jurk, K. Reinhardt,  
S. Körner, U. Partsch, Fraunhofer IKTS, Germany  
**In-situ resistance of sintering silver-glass composites for solar cell contacts**
- 12.20 Lunch buffet

### III. Health, Medical, Biological Aspects – Fundamentals and Application

Conference room K3

#### Session III.6 Glass and glass-ceramics in dentistry

- Chair: Dr. Antoni Tomsia, Berkeley, United States  
Prof. Wolfram Höland, Schaan, Liechtenstein
- 08.30 W. Hoeland, M. Schweiger, C. Ritzberger,  
Ivoclar Vivadent AG, Liechtenstein  
**Mechanisms of controlled nucleation and  
crystallization of glasses to develop  
glass-ceramic products (invited)**
- 09.10 C. Vogel, O.-M. Goudouri, A. Boccaccini,  
Institute of Biomaterials, Friedrich-Alexander-  
University Erlangen-Nuremberg, Germany  
**Sol-gel processing of novel bioactive scaffolds  
for periodontal tissue regeneration**
- 09.30 B. Durschang, M. Kilo, J. Probst,  
Fraunhofer ISC, Germany  
**Dental glass-ceramics with high amorphous  
zirconia content**
- 09.50 Coffee break
- 10.20 **PLENARY LECTURE VARSHNEYA AWARD  
in Europa Saal**

#### Session III.7 Bioactive glass in wound healing, vascularization and soft tissue engineering

- Chair: Dr. Himanshu Jain, Bethlehem, United States  
Dr. Enrica Verné, Torino, Italy
- 11.00 R. Brow, H. Shi, J. George, Q. Yang, S. Chen,  
Missouri S&T, United States (invited)  
**Dissolution-precipitation behavior of borate  
bioglasses and its effect on cellular activity**
- 11.40 S. Jung, MO-SCI Corporation, United States  
**Evaluation of bioactive borate glass fibers in-  
vivo and in-vivo for wound care applications**
- 12.00 M. T. Souza, Federal University of  
São Carlos, Brazil;  
A. C. Renno, Unifesp, Brazil;  
O. Peitl, E. D. Zanotto, Federal University of  
São Carlos, Brazil  
**New highly bioactive glass fibers for skincare**
- 12.20 Lunch buffet

## IV.A Fundamentals of the Glassy State and Amorphous Materials

Conference room K1

### Session IV.A17 Computational simulation I

- Chair: Dr. Gang Chen, Athens, United States
- 08.30 W. Kob, Université Montpellier 2 – Institut universitaire de France, France (invited)  
**On the structure of sodium-borosilicate glasses: Insight from ab initio simulations**
- 09.10 A. Takada, Asahi Glass Co., Ltd., Japan  
**Computer simulation of dynamical structural changes in tridymite and silica glass (Keynote)**
- 09.30 K. Sebeck, J. Kieffer, University of Michigan, United States  
**Comparing the effects of topology on rigidity in silicate glasses and glassy polymers using MD simulations**
- 09.50 Coffee break
- 10.20 **PLENARY LECTURE VARSHNEYA AWARD in Europa Saal**

### Session IV.A18 Computational simulation II

- Chair: Dr. Gang Chen, Athens, United States
- 11.00 L. Huang, F. Yuan, Rensselaer Polytechnic Institute, United States  
**Molecular dynamics study of intermediate glass**
- 11.20 M. Stamminger, Heraeus Quarzglas GmbH & Co KG, Germany  
**Numerical modeling of hydrogen species distributions resulting from fused silica manufacturing processes**
- 11.40 A. Gulenko, O. Masson, A. Berghout, D. Hamani, P. Thomas, Laboratoire Science des Procédés Céramiques et de Traitements de Surface UMR 7315 CNRS - Université de Limoges, France  
**Atomistic simulations of TeO<sub>2</sub>-based glasses: Interatomic potentials and molecular dynamics (Keynote)**
- 12.00 A. Baroni, LPTMC, France; G. Ferlat, IMPMC, France; M. Salanne, PECSA, France; M. Micoulaut, LPTMC, France  
**Transport anomalies, structure and ring structure in densified liquid B<sub>2</sub>O<sub>3</sub>**
- 12.20 Lunch buffet

## IV.B Fundamentals of the Glassy State and Amorphous Materials

Conference room K2

### Session IV.B 19 Nucleation & Crystallization I

- Chair: Dr. Sindy Fuhrmann, Jena, Germany
- 08.30 R. Donfeu Tchana, Institute of Non-Metallic Materials, Clausthal, University of Technology, Germany;  
T. Pfeiffer, B. Rüdinger, Research and Technology Development, Schott AG, Germany;  
J. Deubener, Institute of Non-Metallic Materials, Clausthal, University of Technology, Germany  
**Nucleation in ZrO<sub>2</sub>- and TiO<sub>2</sub>-bearing lithium aluminosilicate (LAS) glass-ceramics studied by optical spectroscopy**
- 08.50 J. Deubener, S. Krüger, Clausthal University of Technology, Germany;  
R. Müller, Federal Institute of Materials Research and Testing (BAM), Berlin, Germany  
**Rate curve and induction time analysis of heterogeneous crystal nucleation in glass-ceramic systems**
- 09.10 K. Otto, C. Rüssel, Otto-Schott-Institut für Materialforschung, Germany  
**Nucleation inhibitors in lithium disilicate glass**
- 09.30 L. S Gallo, Programa de Pós-Graduação em Ciência e Engenharia de Materiais, Brazil;  
T. D. M. Mosca, Nadir Figueiredo, Brazil;  
B. H. Teider, Alcoa, Brazil;  
I. G. Polyakova, Grebenshchikov Institute of Chemistry of Silicates, Russian Federation;  
A. C. M. Rodrigues, Universidade Federal de São Carlos, Brazil;  
E. D. Zanotto, Federal University of Sao Carlos - CeRTEV, Brazil;  
V. V. Fokin, Vavilov State Optical Institute, Russian Federation  
**Effect of Li<sub>2</sub>O on the crystallization of Na<sub>2</sub>O.2CaO.3SiO<sub>2</sub> glass**
- 09.50 Coffee break
- 10.20 **PLENARY LECTURE VARSHNEYA AWARD in Europa Saal**

**Session IV.B20 Nucleation & Crystallization II**

- Chair: Prof. Joachim Deubener, Clausthal-Zellerfeld, Germany
- 11.00 P. Thapar, R. Golovchak, H. Jain, International Materials Institute for New Functionality in Glass, United States  
**Role of nanoscale phase separation in the devitrification of 45S5 bioactive glass**
- 11.20 A. Gaddam, H. Fernandes, J. M. F. Ferreira, Department of Materials and Ceramics Engineering, CICECO, Portugal  
**The role of manganese on structure, crystallization and sintering behaviors of Li<sub>2</sub>O-SiO<sub>2</sub> glasses**
- 11.40 S. Krüger, J. Deubener, Clausthal University of Technology, Germany;  
C. Ritzberger, W. Höland, Ivoclar Vivadent AG, Liechtenstein  
**The overlap of nucleation and growth rate curves in silicate glasses: A DSC study**
- 12.00 E. Meechoowas, U. Pantulap, K. Tapasa, T. Jitwatcharakomal, Department of Science Service, Thailand  
**The effect of modified soda-lime cullet composition on crystallization of glass-ceramics**
- 12.20 Lunch buffet

## V. Optical Materials and Devices – Fundamentals and Application

Conference room K4/5

### Session V.9 Thin film

Chair: Dr. Juejun Hu, Newark, United States

08.30 V. Singh, P. T. Lin, Microphotonics Center,  
Massachusetts Institute of Technology, Cambridge,  
MA, United States;

J. Giammarco, A. P. Soliani, School of Materials  
Science and Engineering, Clemson University,  
Clemson, SC, United States;

J. Hu, Department of Materials Science and  
Engineering, University of Delaware, Newark, DE,  
United States;

J. D. Musgraves, K. Richardson, College of Optics  
and Photonics, CREOL, University of Central  
Florida, Orlando, FL, United States;

I. Luzinov, School of Materials Science and  
Engineering, Clemson University, Clemson, SC,  
United States;

J. Hensley, Physical Sciences Inc., Andover, MA,  
United States;

L. C. Kimerling, A. Agarwal, Microphotonics Center,  
Massachusetts Institute of Technology, Cambridge,  
MA, United States

#### **Chalcogenide glass-on-silicon platform for integrated infrared chemical sensing**

08.50 O. Ogbuu, Q. Du, H. Lin, L. Li, Y. Zou, Department  
of Materials Science & Engineering, University of  
Delaware, United States;

S. Danto, K. Richardson, Infrared Optics  
Manufacturing Laboratory/CREOL, University of  
Central Florida, United States;

J. Hu, Department of Materials Science &  
Engineering, University of Delaware, United States

#### **Effect of oxygen deficiency on structural and optical properties of sputter deposited multi-component tellurite glass films**

09.10 Y. Zou, J. Zhou, L. Moreel, L. Savelli, H. Lin, L. Li,  
University of Delaware, United States;

E. Koontz, S. Danto, University of Central Florida,  
United States;

J. D. Musgraves, IRradiance Glass Inc,  
United States;

K. Richardson, University of Central Florida,  
United States; J. Hu, University of Delaware, United  
States

#### **Thin film As-Se chalcogenide glasses: Physio- chemical properties and optical applications**

- 09.30 S. Novak, Department of Materials Science and Engineering, COMSET, Clemson University, Clemson, SC, United States;  
D. E. Johnston, Department of Mechanical and Aerospace Engineering, University of Central Florida, United States;  
N. Patel, Microphotonics Center, Massachusetts Institute of Technology, Cambridge, MA, United States;  
W. Deng, Department of Mechanical and Aerospace Engineering, University of Central Florida, United States;  
N. McClenaghan, Institut des Sciences Moléculaires, University of Bordeaux, Talence, France;  
A. Agarwal, Microphotonics Center, Massachusetts Institute of Technology, Cambridge, MA, United States;  
K. A. Richardson, University of Central Florida, Glass Processing and Characterization Lab, United States  
**Characterization of luminescent quantum dot doped chalcogenide glass films from solution**

09.50 Coffee break

10.20 **PLENARY LECTURE VARSHNEYA AWARD in Europa Saal**

### **Session V.10 Glass ceramics and optical ceramics I**

Chair: J. Qiu, Hangzhou, China

- 11.00 L. Glebova, OptiGrate, United States;  
H. Mingareev, D. Ott, UCF/CREOL, United States;  
M. Klimov, UCF/AMPAC, United States;  
I. Divliansky, L. Glebov, UCF/CREOL, United States  
**Effect of UV exposure on photoinduced crystallization and refractive index change in PTR glass**
- 11.20 L. Calvez, B. Xue, X.-H. Zhang, Equipe Verres et Céramiques, France  
**Novel ways to prepare non linear chalcogenide glass-ceramics**
- 11.40 T. Lai, R. Biggie, W.-J. Huang, B. Potter Jr, K. Simmons-Potter, University of Arizona, United States  
**Environmental performance and degradation of Si-based photovoltaic cells and modules**
- 12.00 W. Wisniewski, A. Keshavarzi, C. Rüssel, Otto-Schott-Institut, Germany  
**Unexpected results from YAG-containing light conversion glass ceramics**
- 12.20 Lunch buffet



## VI. Nuclear Waste Forms – Fundamentals and Applications

Conference room K6

### Session VI.1 Waste form development and processing

Chair: Dr. Joseph V. Ryan, Richland, United States

08.30 B. Clark, P. Tumurugoti, S K Sundaram,  
Alfred University, United States

**Structure-terahertz properties relationship  
in pyrochlore, zirconolite, and hollandite  
materials for energy applications**

08.50 C.-W. Kim, MO-SCI Corporation, United States;  
J. H. Hsu, R. Brow, C. Ray, D. Day, Missouri  
University of Science and Technology, United States

**Vitrification of simulated Hanford LAW using  
iron phosphate glasses**

09.10 J. McCloy, Washington State University, United  
States;

B. Riley, M. Schweiger, D.-S. Kim, C. Iovin, Pacific  
Northwest National Laboratory, United States;  
W. Lukens, Lawrence Berkeley National Laboratory,  
United States

**Incorporation of large fractions of iodine  
in borosilicate glass**

09.30 H. Sugiyama, S. Komamine, N. Kanehira, E. Ochi,  
Japan Nuclear Fuel Limited, Japan; T. Nabemoto,  
Y. Usui, I. Oono, IHI Corporation, Japan

**Full-scale inactive test for development of  
the advanced melter in RRP**

09.50 Coffee break

10.20 **PLENARY LECTURE VARSHNEYA AWARD  
in Europa Saal**

### Session VI.2 Glass corrosion: Isotopic characterization

Chair: Dr. Joseph V. Ryan, Richland, United States

11.00 A. Verney-Carron, LISA, France; M. Saheb, LISA,  
France;

N. Valle, CRP-GL, Luxembourg;

R. Losno, LISA, France; C. Loisel, LRMH, France

**Isotopic tracing (D, 18O and 29Si) to  
understand the mechanism and the kinetic  
role of the alteration layer on stained glass  
in atmospheric medium (invited)**

- 11.40 J. Neeway, J. Ryan, Z. Zhu, Z. Wang, Pacific Northwest National Laboratory, United States; S. Gin, CEA, France  
**Low-temperature lithium diffusion in boroaluminosilicate nuclear waste glasses**
- 12.00 S. Gin, P. Jollivet, D. Rebiscoul, CEA, France  
**Leaching of ISG glass in <sup>29</sup>Si-saturated solution: Effect of pH on the residual rate**
- 12.20 Lunch buffet

# I. Advances in the Fusion and Processing of Glass

Europa Saal

## Session I.6 Surface treatment

Chair: Prof. Edda Rädlein, Ilmenau, Germany

- 13.30 S. Karlsson, Glafo AB, Sweden;  
S. Ali, M. Strand, Linnaeus University, Sweden;  
L. Wondraczek, Otto-Schott-Institute of Materials Research, Germany  
**Chemical strengthening of flat glass by vapour deposition and in-line alkali metal ion exchange**
- 13.50 M. Patschger, C. Rüssel, Otto-Schott-Institut für Materialforschung, Germany  
**Chemical strengthening of flat glass: A technological alternative to the batch process**
- 14.10 H. Roggendorf, Martin-Luther-Universität Halle-Wittenberg, Institut für Physik, Germany;  
T. Rässler, Hochschule Mittweida, University of Applied Science, Germany;  
D. Enke, Universität Leipzig, Institut für Technische Chemie, Germany  
**Development of porous glass surfaces**
- 14.30 G. Lubitz, Vetroconsult AG, Switzerland  
**Hardglass – on the threshold of market introduction**
- 14.50 H. Hessenkemper, M. Hötzel, TU Bergakademie Freiberg, Germany  
**Surface improvement in glass production**
- 15.10 Coffee break
- 15.40 **PLENARY LECTURE VARSHNEYA AWARD in Europa Saal**

## Panel discussion

Moderators: Prof. Arun Varshneya, Alfred, United States  
Prof. Helmut A. Schaeffer, Berlin, Germany

16.20-18:00 Panel discussion

## II. Energy Applications of Glass – Fundamentals and Application

Brüssel Saal

### Session II.6 Thermal insulation glasses

- Chair: Prof. Yuanzheng Yue, Aalborg, Denmark  
Prof. Pierre Lucas, Tucson, United States
- 13.30 P. Lucas, G. Coleman, Q. Hao,  
University of Arizona, United States (invited)  
**Chalcogenide glass nanocomposites as  
effective thermal insulation materials**
- 14.10 R. R. Petersen, J. König, M. M. Smedskjaer,  
Y. Yue, Aalborg University, Denmark  
**Viscous control of the foam glass process**
- 14.30 J. König, R. R. Petersen, Y. Yue, Aalborg University,  
Denmark  
**Influence of glass particle size on density,  
mechanical and thermal insulating properties  
of foamed glasses**
- 15.10 Coffee break
- 15.40 **PLENARY LECTURE VARSHNEYA AWARD  
in Europa Saal**

### Panel discussion

- Moderators: N.N.  
N.N.
- 16.20-18:00 Panel discussion

## IV.A Fundamentals of the Glassy State and Amorphous Materials

Conference room K1

### Session IV.A21 Computational simulation III - DFT

Chair: Dr. Jincheng Du, Denton, United States

13.30 C. Scherer, M. Letz, Schott AG, Germany;  
F. Schmid, J. Gutenberg-University Mainz, Germany;  
J. Horbach, Heinrich-Heine-University Düsseldorf,  
Germany (Keynote)

#### **Simulation of borate glasses**

13.50 R. P. Stoffel, Institute of Inorganic Chemistry,  
RWTH Aachen University, Germany;  
K. Philipps, R. Conradt, Institute of Mineral  
Engineering, RWTH Aachen University, Germany;  
R. Dronskowski, Institute of Inorganic Chemistry,  
RWTH Aachen University, Germany (Keynote)

#### **Ab initio modelling of crystalline phases and transfer of the results to glassy materials**

14.10 P. Kroll, UT Arlington, United States

#### **Thermochemistry of metal borosilicate glasses**

14.30 P. Kroll, A. Dasmahapatra, UT Arlington, United States

#### **Modeling structural and thermochemical properties of Hafnia-Silica glasses**

14.50 G. Soso, J. Colombo, ETHZ, Switzerland;  
J. Behler, University of Bochum, Germany;  
E. Del Gado, ETHZ, Switzerland;  
M. Bernasconi, University of Milano-Bicocca, Italy;  
M. Parrinello, ETHZ, Switzerland

#### **Dynamical heterogeneities and crystallization kinetics in the supercooled liquid state of the phase change compound GeTe**

15.10 Coffee break

15.40 **PLENARY LECTURE VARSHNEYA AWARD  
in Europa Saal**

### Session IV.A22 Computational simulation IV

Chair: Dr. Jincheng Du, Denton, United States

16.20 M. Micoulaut, UPMC, France;  
M. Bauchy, MIT, United States;  
A. Kachmar, UPMC, France  
**Properties of chalcogenide network glasses  
from ab initio simulations**

16.40 K. Gunasekera, P. Boolchand, University of  
Cincinnati, United States;  
M. Micoulaut, UPMC, France  
**Rigidity and intermediate phases in  
amorphous Group IV tellurides**

17.00 End of session

## V. Optical Materials and Devices – Fundamentals and Application

Conference room K4/5

### Session V.11 Optical fibers

- Chair: Dr. Bruno Bureau, Rennes, France
- 13.30 J. Lousteau, Istituto Superiore Mario Boella, Italy;  
E. Mura, G. C. Scarpignato, N. G. Boetti,  
D. Milanese, Politecnico di Torino – DISAT, Italy  
**Phosphate glasses for fiber laser applications  
(invited)**
- 14.00 H. Ebendorff-Heidepriem, The University  
of Adelaide, Australia  
**Recent progress in extending non-silica glass  
properties and fibre fabrication (invited)**
- 14.30 F. Sorin, Ecole Polytechnique Fédérale of  
Lausanne, Switzerland  
**Multi-material fiber devices: a review of  
current trends and future prospects**
- 14.50 D. Manzani, H. Ebendorff-Heidepriem, Institute for  
Photonics and Advanced Sensing – University of  
Adelaide, Australia;  
S. J. L. Ribeiro, Institute of Chemistry – São Paulo  
State University – UNESP, Brazil;  
T. Monro, Institute for Photonics and Advanced  
Sensing – University of Adelaide, Australia  
**Specialty optical fibers for temperature  
sensing based on spontaneous Raman  
scattering**
- 15.10 Coffee break
- 15.40 **PLENARY LECTURE VARSHNEYA AWARD  
in Europa Saal**

### Session V.12 Glass ceramics and optical ceramics II

- Chair: Prof. Johann Troles, Rennes, France
- 16.20 J. Qiu, S. Zhou, South China University of  
Technology, China  
**Glass-ceramics for photonic devices**
- 17.00 T. Zschechel, W. Wisniewski, Otto-Schott-Institute,  
University Jena, Germany;  
A. Gebhardt, Vitron Spezialwerkstoffe GmbH,  
Germany;  
C. Rüssel, Otto-Schott-Institute, University Jena,  
Germany  
**Growth mechanisms in CVD-ZnS**

- 17.20 I. Mitra, R. Jedamzik, C. Kunisch, P. Hartmann,  
T. Westerhoff, SCHOTT AG, Germany  
**Optimized glass-ceramic substrate for  
advanced applications**
- 17.40 K.-D. Schicke, TU Freiberg, IKGB, Germany;  
H. Hofmeister, Max-Planck-Institut für  
Mikrostrukturphysik Halle, Germany;  
M. Dubiel, Martin-Luther-Universität  
Halle-Wittenberg, Institut für Physik, Germany  
**Study about the formation of small Ag  
nanoparticles in soda lime silicate glass  
by Ag/Na ion exchange**
- 18.00 End of session

## VI. Nuclear Waste Forms – Fundamentals and Applications

Conference room K6

### Session VI.3 Glass corrosion: Experiment

- Chair: Dr. Joseph V. Ryan, Richland, United States
- 13.30 Y. Inagaki, T. Kikunaga, K. Idemitsu, T. Arima, Kyushu University, Japan; S.-I. Mitsui, Japan Atomic Energy Agency, Japan  
**Aqueous corrosion rate of International Simple Glass under silica-saturation condition measured by using micro-channel flow-through test method**
- 13.50 E. Vance, Australian Nuclear Science and Technology Organisation, Australia; D. Gregg, G. Griffiths, ANSTO, Australia  
**Positron annihilation lifetime studies of porosity of the alteration layers on leached surfaces of nuclear waste glasses and glass-ceramics**
- 14.10 Y. Gong, N. Mellott, Inamori School of Engineering, United States  
**Surface roughening and compositional evolution of simulated high-level waste glasses under aqueous conditions**
- 14.30 C. Crawford, J. Marra, Savannah River National Laboratory, United States  
**Corrosion testing of glasses and glass-ceramics in support of fuel cycle research and development**
- 14.50 M. Harrison, NNL, United Kingdom; C. Steele, Sellafield Ltd, United Kingdom  
**Underpinning product quality of vitrified HLW subject to fault scenarios arising during storage, transport and disposal**
- 15.10 Coffee break
- 15.40 **PLENARY LECTURE VARSHNEYA AWARD in Europa Saal**



**Session VI.4 Glass corrosion: Modeling**

- Chair: Dr. Joseph V. Ryan, Richland, United States
- 16.20 P. Zapol, Argonne National Laboratory, United States  
**First-principles calculations of hydrolysis barriers in sodium borosilicate glasses**
- 16.40 R. Conradt, RWTH Aachen University – Institute of Mineral Engineering, Germany (invited)  
**Using thermodynamics in assessing the hydrolytic stability of multicomponent glasses**
- 17.20 C. Lenting, L. Dohmen, T. Geisler, Steinmann Institut, Universität Bonn, Germany  
**Silicate glass corrosion mechanism revisited**
- 17.40 J. Ryan, Pacific Northwest National Laboratory, United States  
**The changing interface between solution and glass: A study of a dynamic system**
- 18.00 End of session

## VI. Nuclear Waste Forms – Fundamentals and Applications

Conference room K6

### Session VI.5 Glass corrosion IV

- Chair: Dr. Joseph V. Ryan, Richland, United States
- 08.30 W. Deng, S. T. Misture, N. P. Mellott,  
Inamori School of Engineering, Alfred University,  
United States  
**Quantitative analysis of glass surfaces and  
bulk glass-surface layer interfaces with  
aqueous corrosion**
- 08.50 R. K. Mishra, V. Thorat, A. Kumar, Waste Manage-  
ment Division, Nuclear Recycle Group, Bhabha  
Atomic Research Centre, Trombay, Mumbai, India;  
V. Sudarsan, Chemistry Division, Bhabha Atomic  
Research Centre, Trombay, Mumbai, India;  
C. P. Kaushik, Waste Management Division,  
Nuclear Recycle Group, Bhabha Atomic Research  
Centre, Trombay, Mumbai, India  
**Chemical durability studies of vitrified waste  
product containing sulphate bearing high level  
radioactive waste**
- 09.10 Z. Zhang, L. Wang, X. You, China Institute of  
Atomic Energy, China  
**Key elements release from simulated HLW  
glass in the pilot repository**
- 09.30 Coffee break
- 10.00 Workshop
- 12.20 Lunch buffet
- 13.30 Workshop
- 18.00 End of session

## VII. 2nd International Glass Fiber Symposium

Conference room K4/5

### Session VII.1 Glassfiber

- Chair: Prof. Thomas Gries, Aachen, Germany  
Prof. Reinhard Conradt, Aachen, Germany
- 08.15 J. Thomason, L. Yang, C.-C. Kao, P. Jenkins, E. Sáez Rodríguez, U. Nagel, University of Strathclyde, United Kingdom  
**The ReCoVeR projects: Regeneration of thermally recycled glass fibre for cost-effective composite recycling**
- 08.35 C. Hopmann, R. Riedel, M. L. Fecher, A. Böttcher, IKV Aachen, Germany; K. Fischer, Aachener Zentrum für integrativen Leichtbau, Germany  
**3-D fibre spraying – Automated preforming process for thermoplastic and thermoset composites**
- 08.55 C. Lenz, A. Schröter, T. Gries, Institut für Textiltechnik der RWTH Aachen University, Germany  
**Concrete and plaster reinforcement by multiple leno fabrics**
- 09.15 S. Stapleton, L. Appel, T. Gries, Institut für Textiltechnik, Germany  
**Micro-mechanical representative volume element modeling of dry fiber bundles**
- 09.35 L. O. Rivera, J. J. Stapleton, V. A. Bakaev, C. G. Pantano, Pennsylvania State University Materials Research Institute, United States  
**Glass fiber surface studies using hydrogen/deuterium exchange, TPD and FTIR**
- 09.55 Coffee break
- 10.30 H. Li, J. Rich, L. Xu, B. Pish, R. Hicks, PPG Industries, Inc., United States  
**Silver ion exchanged fibers for antimicrobial applications**
- 11.05 S. Bartolomey, R. Conradt, RWTH Aachen University, Institute of Mineral Engineering, Department of Glass and Ceramic Composites, Germany  
**The evolution of redox state in silicate melts from batch to product – A literature study**

- 11.25 Q. Chouffart, University of Liège, Belgium;  
P. Simon, 3B The Fibreglass Company, Belgium;  
T. Vincent, University of Liège, Belgium  
**Numerical investigation of the continuous fiber glass drawing process**
- 11.45 U. A. Ozden, IWM RWTH Aachen, Germany;  
P. Simon, 3B Fibreglass, Belgium;  
A. Bezold, C. Broeckmann, IWM RWTH Aachen, Germany;  
D. Laurent, 3B Fibreglass, Belgium  
**Numerical simulation of the thermal expansion and creep of a glassfiber bushing during production**
- 12.05 R. Meuleman, Invensys Eurotherm, The Netherlands  
**How to make fibre glass bushing control "green"?**
- 12.25 Lunch buffet

## VII. 2nd International Glass Fiber Symposium

Conference room K4/5

### Session VII.2 Glassfiber

- Chair: Dr. Hong Li, Cheswick, United States  
Prof. Yuanzheng Yue, Aalborg, Denmark
- 13.30 K. Hellmann, B. Kersting, K. Philipps, R. Conradt, RWTH Aachen University – Institute of Mineral Engineering, Germany  
**Influence of alumina on the tensile strength of glass fiber filaments**
- 13.50 S. Gutnikov, K. Kuzmin, Y. Lipatov, E. Zhukovskaya, B. Lazoryak, Moscow State University, Russian Federation  
**Basalt continuous fibers with advanced mechanical properties**
- 14.10 P. Lezzi, M. Tomozawa, Rensselaer Polytechnic Institute, United States  
**Strengthening of silicate glass fibers by surface stress relaxation**
- 14.30 A. Trofimov, L. Pleshkov, NPO Stekloplastic, Russian Federation  
**High modulus glass fibers and strength of composites based on them**
- 14.50 Y. Vulfson, Hollingsworth and Vose, United States  
**Stress and relaxation of glass microfibers**
- 15.10 Coffee break
- 15.40 L. Chapelle, ROCKWOOL International A/S, Denmark;  
P. Brøndsted, Y. Kusano, DTU Wind Energy, Denmark;  
M. Rosendahl Foldschack, D. Lybye, ROCKWOOL International A/S, Denmark  
**Microstructural characterization of stone wool materials**
- 16.00 M. Solvang, M. Rykær Kraglund, ROCKWOOL International A/S, Denmark;  
Q. Zheng, Y. Yue, Section of Chemistry, Aalborg University, Denmark  
**Application of a topological viscosity model to stone wool compositions**

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- 16.20 Q. Zheng, Aalborg University, Denmark;  
M. Solvang, ROCKWOOL International A/S,  
Denmark;  
Y. Yue, Aalborg University, Denmark  
**Melt stability and fiberizing window of stone  
wool compositions**
- 16.40 O. Prokhorenko, L.G.P. International, LLC,  
United States  
**Determination of liquidus temperature of  
glassforming melts – Problems and solutions**
- 17.00 U. Veit, Otto-Schott-Institute of Materials Research,  
Germany;  
V. Kempeaer, Y. Houet, D. Laurent,  
3B The fibreglass company, Belgium;  
C. Rüssel, Otto-Schott-Institut of Materials  
Research, Germany  
**Liquidus temperature of CMAS-glass melts  
via gradient furnace versus the melting peak  
by DTA**
- 17.20 P. McGinnis, A. Berthereau, M. Korwin-Edson,  
Owens Corning, United States  
**High temperature continuous filament  
fiberglass**
- 17.40 End of session

## Poster-Show

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The posters will be on display during the entire conference.  
Authors will be available at their posters at the following dates:

- **Monday, 26 May 2014, starting 18.30 to 21.00**  
during special poster show and reception
- **Tuesday till Thursday, 27-29 May 2014,**  
**from 09.50 to 10.20 and from 15.10 to 15.40**  
during coffee breaks of the sessions
- **Poster presentation concerning 2nd International  
Glass Fiber Symposium: Friday, 30 May 2014**  
during coffee breaks

### I. Advances in the Fusion and Processing of Glass

- I.1 M. Groß, M. Hubrich, H. Hessenkemper,  
TU Bergakademie Freiberg IKGB, Germany  
**New separating powders for flat glass – An  
innovation in the field of corrosion protection**
- I.2 A. de Pablos-Martín, M. Ebert, S. Tismer, F. Naumann,  
C. Patzig, M. Krause, Fraunhofer Institute for Mechanics  
of Materials IWM, Germany;  
M. Dyrba, P.-T. Miclea, Fraunhofer Center for Silicon  
Photovoltaics CSP, Germany;  
M. Lorenz, M. Grundmann, Institut für Experimentelle  
Physik II, Universität Leipzig, Germany;  
T. Höche, Fraunhofer Institute for Mechanics of Materials  
IWM, Germany  
**Laser welding of sapphire wafers using fresnoite  
glass solder**
- I.3 O. Prokhorenko, L.G.P. International, LLC, United States  
**Complete characterization of structural and stress  
relaxation processes in silicate glasses**
- I.4 R. Bauer, T. Schmidt, L. Richter, ifw – Günter-Köhler-  
Institut für Fügetechnik und Werkstoffprüfung GmbH,  
Germany  
**Laser cutting of hot flat glasses with high CTE**
- I.5 N.-H. Löber, G. Bergmann, J. Simon, H. Müller-Simon,  
Hüttentechnische Vereinigung der Deutschen  
Glasindustrie e.V., Germany  
**The influence of spout and delivery characteristics  
on the gobs - Results of measurements and  
modelling – Part 2**
- I.6 D. Orzol, Otto-Schott-Institut Jena, Germany;  
C. Roos, IPGR, Switzerland;  
**L. Wondraczek, Otto-Schott-Institut Jena, Germany  
Setup and installation of an in-line friction measure-  
ment device for the glass-metal-contact**

- I.7 T. Börner, M. Kretschmer, T. Volland, S. Matthes, H. Hessenkemper, TU Bergakademie Freiberg, Germany; W. Haag, Fickert + Winterling Maschinenbau GmbH, Germany  
**Project presentation "multi-stage rolling thin glass with molding from the melt"**
- I.8 M. Emonds, ACW, Germany  
**Prevention of float-glass corrosion – a practical approach**
- I.9 R. Weigand, H. Hessenkemper, A.-K. Rössel, D. Tritschel, R. Kühne, TU Bergakademie Freiberg, Germany  
**Lowering of refractory corrosion for glass production**
- I.10 A. Hochmuth, E. Rädlein, TU Ilmenau, Germany; R. Conradt, A. Prange, P. Djambazov, RWTH Aachen, Germany  
**Alteration behavior of four model glasses and its relevance to standard industrial glasses**
- I.11 K. Al Hamdan, TU Bergakademie Freiberg, Institute for Ceramic, Glass and construction Materials, Germany; T. Mütze, TU Bergakademie Freiberg, Institute of Mechanical Process Engineering and Mineral Processing, Germany; A. Schumann, TU Bergakademie Freiberg, Institute of Mechanical Process Engineering and Mineral Processing, Germany; H. Hessenkemper, TU Bergakademie Freiberg, Institute for Ceramic, Glass and construction Materials, Germany; U. Peuker, TU Bergakademie Freiberg, Institute of Mechanical Process Engineering and Mineral Processing, Germany  
**Caking of glass batches during storage in raw materials silo**
- I.12 B. Fleischmann, P. Boehm, J. Bauer, HVG Research Association of the German Glass Industry, Germany; M. Martin, A. Giese, GWI Gas- und Wärme-Institut Essen e.V., Germany; H. Wuthnow, Forschungsgemeinschaft Feuerfest e.V., Germany  
**Fermentation gas as fuel for melting glass – Results of the IGF-AiF-research project 397ZN**
- I.13 M. Weidner, B. Halbedel, TU Ilmenau, Germany  
**High-Tc superconducting bulk materials for the Lorentz Force Velocimetry in low conducting and slow flowing solutions**
- I.14 U. Shukla, IIT Gandhinagar, India; A. Sarkar, C. Ghoroi, IIT Gandhinagar, India  
**Numerical study of outside vapor desposition (OVD)**



## Poster-Show

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- I.15 C. McLaren, H. Jain, W. Heffner, Lehigh University, United States  
**Field-assisted viscous flow of alkali silicate glasses**
- I.16 V. M. Sglavo, DII - University of Trento, Italy  
**Influence of processing conditions on the chemical tempering of soda-lime silicate float glass**
- I.17 T. Gerdes, University of Bayreuth, Germany;  
A. Füller, Füller Glastechnologie Vertriebs GmbH, Germany;  
M. Willert-Porada, A. Rosin, University of Bayreuth, Germany;  
G. Brooks, Glasstronics Furnace Technology, United Kingdom;  
A. Saberi, University of Bayreuth, Germany  
**Engineering driven glass quality improvement in small electrical heated continuous melting tanks**
- I.18 F. Stadler, J. Backhausen, UAS Messtechnik GmbH, The Netherlands  
**Energy saving by pre-heating of gas and oxygen**

## II. Energy Applications of Glass – Fundamentals and Application

- II.1 S. Körner, K. Reinhardt, M. Eberstein, Fraunhofer IKTS, Germany  
**Impact of inorganic additives on the paste performance**
- II.2 S. Körner, K. Reinhardt, M. Eberstein, Fraunhofer IKTS, Germany  
**Effects of glass chemistry and viscosity on interface morphology and electrical characteristics of PV silver films**
- II.3 J. Lingner, University of Mainz / Schott AG, Germany;  
M. Letz, Schott AG, Germany;  
G. Jakob, University of Mainz, Germany  
**Thermoelectric phases inside glass-ceramic materials for energy applications**
- II.4 M. Lüpfer, H. Hessenkemper, TU Freiberg – Bereich Glas, Germany  
**Development of a solar collector made of glass**
- II.5 S. Urban, E. Rädlein, TU Ilmenau / Anorganisch-nicht-metallische Werkstoffe, Germany  
**Glass surface analyses and cleaning methods on different glass surfaces**
- II.6 B. Agea-Blanco, IQS School of Engineering, Barcelona, Spain, on a trainee leave at BAM, Spain;  
S. Reinsch, R. Müller, BAM Federal Institute for Materials Research and Testing, Germany  
**Sintering and bloating phenomena of barium disilicate glass powders**

- II.7 K. H. Nielsen, L. Wondraczek, Otto Schott Institute of Materials Research, Germany  
**Evaluation of thin film abrasion resistance by picture analysis**
- II.8 R. R. Petersen, J. König, Y. Yue, Section of Chemistry, Aalborg University, Denmark  
**Thermal conductivity of foam glass**
- II.9 O. Leys, M. Kolb, R. Knitter, Karlsruhe Institute of Technology, Germany  
**Production of lithium-rich ceramic pebbles from a molten jet**
- II.10 J. O. Torres Perez, B. Halbedel, Technische Universität Ilmenau, Germany  
**Experimental validation of the electromagnetic mixer used to homogenize glass melts**
- II.11 B. Curtis, D. Watson, Iowa State University, United States;  
S. Martin, Iowa State University, United States  
**Physical properties of glassy solid state electrolytes of the  $0.5\text{Na}_2\text{S} + 0.5[\text{xSiS}_2 + (1-\text{x})\text{PS}_5/2]$  series**
- II.12 T. Matsuyama, A. Hayashi, M. Tatsumisago, T. Ozaki, Y. Togawa, S. Mori, Osaka Prefecture University, Japan  
**Preparation and characterization of amorphous molybdenum trisulfide electrodes all-solid-state lithium secondary batteries**
- II.13 Y. Ito, A. Sakuda, A. Hayashi, M. Tatsumisago, Osaka Prefecture University, Japan  
**All-solid-state lithium secondary batteries using surface modified electrode particles with sulfide glassy electrolyte thin films**
- II.14 S. Rodriguez-López, Ceramics and Glass Institute (CSIC), Spain;  
R. Comesaña, F. Lusquiños, Vigo University, Spain;  
M. J. Pascual, Ceramics and Glass Institute (CSIC), Spain  
**Laser cladding of glass-ceramic sealants for SOFC**

### III. Health, Medical, Biological Aspects – Fundamentals and Application

- III.1 J. Massera, M. Vassallo-Breillot, B. Törngren, Åbo Akademi, Finland;  
L. Rodrigues, M. Lastusaari, J. Hölsä, University of Turku, Finland;  
L. Hupa, Åbo Akademi, Finland  
**Characterization and in vitro reactivity of CeO<sub>2</sub>-doped Phosphate-based glasses**

- III.2 A. Boccaccini, V. Miguez-Pacheco, University of Erlangen-Nuremberg, Germany;  
L. Strobel, BG-Unfallklinik Ludwigshafen, Germany;  
A. Hoppe, T. Fey, University of Erlangen-Nuremberg, Germany;  
U. Kneser, BG-Unfallklinik Ludwigshafen, Germany;  
P. Greil, University of Erlangen-Nuremberg, Germany  
**Development and characterization of metallic ion releasing silicate bioactive glasses**
- III.3 A. Parsons, University of Nottingham, United Kingdom  
**Combined viscosity measurements to profile phosphate glasses**
- III.4 S. Krenkel, Ilmenau University of Technology, Germany;  
H. Uhlig, D. Enke, University of Leipzig, Germany;  
E. Rädlein, Ilmenau University of Technology, Germany  
**Draw-down technology for the production of porous glass monoliths**
- III.5 J. Bejarano, H. Palza, Facultad de Ciencias Físicas y Matemáticas-Universidad de Chile, Chile;  
P. Caviedes, Facultad de Medicina-Universidad de Chile, Chile  
**Development of antimicrobial bioactive glasses with copper and zinc ions by sol-gel process**
- III.6 C. R. Chinaglia, O. Peitl, Center For Research, Technology and Education in Vitreous Materials. Federal University of São Carlos, Brazil;  
C. O. D. Souza, L. Campanini, Morphology and Pathology Department. Federal University of São Carlos., Brazil;  
C. C. G. Moura, Natural and Biological Science Institute – Federal University of Triangulo Mineiro, Brazil;  
D. Z. Barbosa, Department of Oral and Maxillofacial Surgery and Implantology – Federal University of Uberlândia, Brazil;  
P. G. Coelho, College of Dentistry – New York City University., United States;  
E. D. Zanotto, Center For Research, Technology and Education in Vitreous Materials. Federal University of São Carlos, Brazil  
**A bioactive glass coating on titanium: A new surface with bactericidal property and enhanced wettability and bioactivity**
- III.7 D. Rohanova, Institute of Chemical Technology, Czech Republic;  
T. Kasuga, K. Fujikura Hayashi, Nagoya Institute of Technology, Japan  
**Surface treatment of Ti BIO substrate by glass, glass-ceramic and ceramic powders for speed up of the healing**

- III.8 A. Motealleh, J. M.F. Ferreira, A. Lemos, University of Aveiro, Portugal;  
S. Eqtesadi, Universidad de Extremadura, Spain  
**Preparation and characterisation of porous Chitosan/FastOs@BG membranes for nerve tissue regeneration**
- III.9 I. Ahmed, University of Nottingham, United Kingdom;  
S. Is Shaharuddin, International Islamic University Malaysia, Malaysia;  
J. Massera, Åbo Akademi Process Chemistry Centre, Finland;  
A. J Parsons, D. Furniss, C. D Rudd, University of Nottingham, United Kingdom  
**Manufacture of novel core-clad phosphate-based glass fibres for biomedical applications**
- III.10 C. Covarrubias, University of Chile, Faculty of Dentistry, Chile;  
F. Arroyo, I. Celhay, C. Balanda, University of Chile, Faculty of Dentistry, Chile;  
C. Urra, J. P. Rodriguez, A. M. Pino, University of Chile, Inta, Chile;  
M. Neira, University of Chile, Faculty of Dentistry, Chile  
**Synthesis of bone-repair nanobioceramics and their in vitro bioactive properties**
- III.11 U. Brokmann, E. Rädlein, TU Ilmenau, Germany;  
T. Milde, K. Liefeith, Institut für Bioprozess- und Analysenmesstechnik e.V., Germany  
**Investigations on the fs-laser exposure process of micro structurable photosensitive glasses for tissue engineering**
- III.12 A. Haider, S. Mohsin, A. Waseem, N. Karpukhina, Queen Mary University of London, United Kingdom  
**Use of alginates with bioactive glass for bone scaffolds**

## IV. Fundamentals of the Glassy State and Amorphous Materials

- IV.1 L. S. Everton, A. A. Cabral, Federal Institute of Maranhao, Brazil  
**Determining the kinetic parameters for isothermal crystallization in a lithium disilicate (LS2) glass by OM and DSC**
- IV.2 M. Shepilov, A. Zhilin, O. Dymshits, NITIOM Vavilov State Optical Institute, Russian Federation  
**Effect of polydispersity of particles on light scattering by inhomogeneous glasses**

- IV.3 M. Dathe, H. Roggendorf, Martin-Luther-University Halle-Wittenberg, Institute of Physics, Germany  
**Corrosion of sodium silicate glasses: The development of reaction layers**
- IV.4 A. Thieme, S. Fuhrmann, L. Wondraczek, Otto-Schott-Institut of Materials Research, Germany  
**Glass forming ability in the sulfophosphate glass system**
- IV.5 K. Griebenow, D. Möncke, Otto-Schott-Institute Jena, Germany;  
M. Mackovic, E. Spiecker, Department of Materials Science and Engineering, Center for Nanoanalysis and Electron Microscopy (CENEM), University of Erlangen-Nuremberg, Germany;  
L. Wondraczek, Otto-Schott-Institute Jena, Germany  
**Anisotropy in alkaline earth metaphosphate glasses**
- IV.6 P. Kroll, J. P. Nimmo, UT Arlington, United States  
**First-principles studies of amorphous silicon oxycarbide: Correlating  $^{29}\text{Si}$ -NMR chemical shifts with structural properties**
- V.7 S. Striepe, J. Deubener, Clausthal University of Technology, Institute of Non-Metallic Materials, Germany  
**Crack-tip condensation and sub-critical crack growth in metaphosphate glasses: Effect of lithium-to-magnesium ratio**
- IV.8 R. Wang, Australian National University, Australia;  
X. Shen, Ningbo University, China;  
S. Xu, Z. Yang, Australian National University, Australia;  
B. Luther Davies, Australian National University, Australia  
**Enhanced mid infrared emission in Ge-Ga-Se glass-ceramics**
- IV.9 J. Kjeldsen, Y. Yue, AAU, Denmark;  
A. C. M. Rodrigues, UFSCar, Brazil  
**Fragility-structure-conductivity relations in vanadium tellurite glass**
- IV.10 A. Deinhardt, P. Michel, M. Kilo, Fraunhofer Institute for Silicate Research ISC, Germany  
**Analyzing the network formation in silicate-based glasses depending on the amount and type of network modifier**
- IV.11 R. Weigand, D. Tritschel, A.-K. Rössel, P. Zschoge, TU Bergakademie Freiberg, Germany  
**Influence of the atmosphere to the glass properties**

- IV.12 V. Mehner, D. Möncke, Friedrich-Schiller-Universität Jena, Germany;  
O. Mecking, Thüringer Landesamt für Denkmalpflege und Archäologie, Germany;  
L. Wondraczek, Friedrich-Schiller-Universität Jena, Germany

**Copper speciation in silicate glasses**

- IV.13 F. Drünert, D. Möncke, Otto-Schott-Institut, Friedrich-Schiller-Universität Jena, Germany;  
E. Palamara, Laboratory of Archaeometry, Dept. of History, Archaeology and Cultural Resources Management, University of Peloponnese, Kalamata, Greece;  
O. Mecking, Thüringisches Landesamt für Denkmalpflege und Archäologie, Weimar, Germany;  
D. Palles, E. Kamitsos, Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece;  
L. Wondraczek, Otto-Schott-Institut, Friedrich-Schiller-Universität, Germany;

**Antimonates as colorants and opacifiers in mosaic tesserae, glasses, and glazes from antiquity to the 17th century**

- IV.14 J. Rimsza, J. Du, The University of North Texas, United States  
**Study of water/nanoporous silica interactions from ab initio simulations**

- IV.15 M. Prewitz, R. Müller, K. Holtappels, C. Marotzke, Bundesanstalt für Materialforschung und -prüfung, Germany  
**Characterization of glass capillary hydrogen storage modules considering permeability and mechanical stress via finite elements**

- IV.16 I. Hasdemir, Mimar Sinan Fine Arts University, Istanbul, Turkey;  
S. Striepe, J. Deubener, Clausthal University of Technology, Institute of Non-Metallic Materials, Germany;  
B. Schmidt, Department of Experimental and Applied Mineralogy, University of Göttingen, Germany  
**Micromechanical properties of alteration layers of archaeological glass fragments**

- IV.17 X. Cheng, R. Brow, G. Chen, Missouri University of Science and Technology, United States  
**The effect of Al<sub>2</sub>O<sub>3</sub> on the solubility of phosphate in borosilicate glasses: A multinuclear (<sup>31</sup>P, <sup>27</sup>Al, <sup>11</sup>B, <sup>29</sup>Si) MAS NMR and Raman study**

## Poster-Show

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- IV.18 B. Hota, Institute of Non-Metallic Materials, Clausthal University of Technology, Clausthal-Zellerfeld, Germany / SCHOTT AG, Corp. Res. & Technol. Dev., Mainz, Germany;  
O. Hochrein, M. Bockmeyer, I. Burger, SCHOTT AG, Corp. Res. & Technol. Dev., Mainz, Germany;  
J. Deubener, Institute of Non-Metallic Materials, Clausthal University of Technology, 38678 Clausthal-Zellerfeld, Germany  
**Methodology for determining scratch resistance of glass-ceramics**
- IV.19 C. Hermansen, Aalborg University, Denmark;  
J. Matsuoka, S. Yoshida, Center for Glass Science and Technology, the University of Shiga Prefecture, Japan, Japan;  
H. Yamazaki, Y. Kato, Technical Division, Nippon Electric Glass Co., Ltd., Japan;  
Y.-Z. Yue, Aalborg University, Denmark  
**Plastic deformation in glasses: Composition dependence and implications**
- IV.20 B. Poletto Rodrigues, Otto Schott Institut für Materialforschung – FSU Jena, Germany;  
C. Barca Bragatto, Laboratório de Materiais Vítreos – DEMa/UFSCar, Brazil;  
L. Wondraczek, Otto Schott Institut für Materialforschung – FSU Jena, Germany  
**Bond constraint theory analysis of thermal and mechanical properties of  $x\text{AgI} \cdot (1-x)\text{AgPO}_3$  glasses**
- IV.21 E. Hoar, S. Feller, M. Affatigato, Coe College, United States  
**Study of intermediate range units in barium and potassium tellurite glasses using laser ionization time of flight mass spectrometry**
- IV.22 M. Faaborg, K. Goranson, E. Troendle, N. Barnes, M. Affatigato, S. Feller, Coe College, United States;  
D. Holland, University of Warwick, United Kingdom  
**Spectrafit: A custom made program to simulate  $^{10}\text{B}$  NMR spectra with two sites**
- IV.23 A. Zieser, N. Johnson, K. Davis, J. Thompson, S. Singleton, S. Feller, M. Affatigato, Coe College, United States  
**Thermal behavior of lead and barium vanadate glasses related to structure**
- IV.24 Z. Y. Yao, University of Rennes 1 and University Jena, France;  
F. Celarie, University of Rennes 1, France;  
L. Wondraczek, University of Jena, Germany;  
T. Rouxel, University of Rennes 1, France  
**Temperature dependence of the elastic moduli and structural changes in copper-lead-borate glasses as a function of the copper content**

- IV.25 A. Helebrant, L. Hrbek, H. Hradecka, P. Dyrckova, S. Pech, Z. Vcelisova, M. Bilikova, Faculty of Chemical Technology, ICT Prague, Czech Republic  
**Corrosion of crystal glass – kinetics and mechanisms**
- IV.26 R. Limbach, Otto Schott Institute of Materials Research, Friedrich Schiller University, Jena, Germany;  
J. Deubener, Institute of Non-Metallic Materials, Clausthal University of Technology, Clausthal-Zellerfeld, Germany;  
L. Wondraczek, Otto Schott Institute of Materials Research, Friedrich Schiller University, Jena, Germany  
**Surface nitridation of binary alkaline earth metaphosphate glasses**
- IV.27 R. Fernandes, E. Ferreira, University of São Paulo – EESC/USP, Brazil  
**Calculus of heterogeneous crystallization kinetics of glass particles with regular shapes and comparison with non-isothermal DSC**
- IV.28 G. Lucero, U. Schadewald, B. Halbedel, Technische Universität Ilmenau, Institute of Materials Engineering, Group of Inorganic-Nonmetallic Materials, Germany  
**Investigation of the influence of Kelvin forces on aqueous solutions with paramagnetic ions**
- IV.29 T. Kishi, F. Lebreton, Y. Saeki, T. Amagasa, T. Kumagai, T. Yano, Tokyo Institute of Technology, Japan  
**Redox states of transition-metal ions in tellurite glass and melt**
- IV.30 O. Laurent, Laboratoire de Physique Théorique de la Matière Condensée – LPTMC, France; M. Micoulaut, UPMC, France  
**Molecular dynamics of helium stuffing in densified silica**
- IV.31 M. Micoulaut, UPMC, France;  
M.-V. Coulet, Université Aix-Marseille, France;  
A. Piarristeguy, Université Montpellier II, France;  
M. Johnson, G. Cuello, ILL Grenoble, France;  
J.-Y. Raty, Université de Liège, Belgium;  
H. Flores-Ruiz, UPMC, France;  
A. Pradel, Université Montpellier II, France  
**Effect of the concentration in Ge-Te liquids: A combined density functional and neutron diffusion study**
- IV.32 E. B. Ferreira, G. S. Macena, University of São Paulo, Brazil  
**Glass forming ability and microstructure of glass-ceramics in the system  $\text{Na}_2\text{O}-\text{CaO}-\text{SiO}_2$**



- IV.33 D. Savytsky, Lehigh University, United States;  
M. Sanders, The College of New Jersey, United States;  
R. Golovchak, Austin Peay State University,  
United States; B. Knorr, V. Dierolf, H. J. Himanshu Jain,  
Lehigh University, United States  
**Crystallization of stoichiometric SbSI glass**
- IV.34 F. Cormack, W. Lacourse, Alfred University,  
United States  
**Silver metal nanoparticle formation in float glass  
ion-exchanged at low temperatures**
- IV.35 M. Kilo, A. Diegeler, M. Straub, Fraunhofer ISC, Germany  
**Investigations towards an automated detection of  
the crystallization of high-performance glasses  
using thermo-optical methods**

## V. Optical Materials and Devices – Fundamentals and Application

- V.1 M. Kracker, C. Worsch, W. Seeber, C. Rüssel,  
Jena University, Germany  
**Plasmonic resonance of dewetted metallic films  
on glass**
- V.2 J. Galbraith, J. Zwanziger, Dalhousie University, Canada;  
M. Aldridge, J. Kieffer, University of Michigan,  
United States  
**Brillouin spectroscopy measurements of the  
elasto-optic tensor of glass**
- V.3 O. Prokhorenko, L.G.P. International, LLC, United States  
**Optical instrument for measurements of spectral  
absorption, and parameters of heat transfer in melts**
- V.4 M. Dubiel, M. Stiebing, Martin Luther University Halle-  
Wittenberg, Institute of Physics, Germany;  
T. Rainer, Boraident GmbH, Germany; E. Pippel,  
Max Planck Institute of Microstructure Physics, Halle,  
Germany  
**Generation of line pattern formed by nanoparticles  
induced by solid state laser irradiation**
- V.5 M. Lüpfer, H. Hessenkemper, TU Freiberg – Bereich  
Glas, Germany  
**Development of a solar collector made of glass**
- V.6 G. Gao, L. Wondraczek, Otto-Schott-Institut,  
University of Jena, Germany  
**Enhanced photoluminescence of Eu<sup>3+</sup>-activated  
soda-yttria-silicate glass ceramic**
- V.7 P. Rabenbauer, TU Ilmenau, Germany; C. Wille,  
OSRAM GmbH, Germany;  
E. Rädlein, TU Ilmenau, Germany  
**Development of high refractive glass solders**

- V.8 Z. Yang, The Australian National University, Australia;  
A. Yang, B. Zhang, Jiangsu Normal University, China;  
T. Wang, P. Ma, The Australian National University,  
Australia;  
R. Wang, B. Luther-Davies, Australian National University,  
Australia  
**Dispersion of chalcogenide glasses in the  
mid-infrared**
- V.9 K. Yamaura, T. Yano, T. Kishi, Tokyo Institute of  
Technology, Japan;  
N. Kitazawa, National Defense Academy of Japan, Japan  
**Nucleation and growth mechanism of gold  
nanoparticles in organic-inorganic hybrid film by  
capillary electrophoresis doping technique with  
poly(3-hexylthiophene) template**
- V.10 M. Heinz, M. Dubiel, Martin Luther University Halle-  
Wittenberg, Institute of Physics, Germany;  
J. Meinertz, J. Ihlemann, Laser-Laboratorium  
Göttingen e.V., Germany;  
A. Hoell, Helmholtz-Zentrum Berlin für Materialien und  
Energie GmbH, Germany  
**Investigation of metal nanoparticles formed  
by means of excimer laser irradiation of ion-  
exchanged glasses**
- V.11 M. Montesso, Federal University of São Carlos – UFSCar  
and São Paulo State University – UNESP, Brazil;  
D. Manzani, S. J. L. Ribeiro, Institute of Chemistry – São  
Paulo State University – UNESP, Brazil;  
M. Nalin, Federal University of São Carlos – UFSCar and  
São Paulo State University – UNESP, Brazil  
**Production of optical fibers based on niobium-  
pyrophosphate glasses for photonic applications**
- V.12 J. Cook, Austin Peay State University, United States;  
S. Slang, University of Pardubice, Czech Republic;  
J. Oelgoetz, Austin Peay State University, United States;  
M. Vlcek, University of Pardubice, Czech Republic;  
H. Jain, Lehigh University, United States;  
A. Kovalskiy, Austin Peay State University, United States  
**Phototstructural response of spin coated and  
thermally evaporated chalcogenide thin films**
- V.13 A. Parma, M. Müller, L. Wondraczek, Friedrich Schiller  
University Jena, Germany  
**High temperature absorption spectroscopy of  
Bi-doped glasses: Investigation on the redox  
behavior of Bi species and their role as active  
centers for broadband NIR photoluminescence**

- V.14 V. S. Raghuwansi, Department of Chemistry, Humboldt University of Berlin, Germany;  
C. Böcker, Otto-Schott-Institut, Friedrich-Schiller-University Jena, Germany;  
A. Hoell, Helmholtz Zentrum Berlin for Material and Energy, Germany;  
K. Rademann, Department of Chemistry, Humboldt University of Berlin, Germany;  
C. Rüssel, Otto-Schott-Institut, Friedrich-Schiller-University Jena, Germany  
**Crystallization of barium fluoride nanocrystals in oxyfluoride silicate glass: ASAXS investigation**
- V.15 R. Beal, B. Potter, J. Simmons, University of Arizona, United States  
**Angle of incidence effects on the energy conversion behavior of polycrystalline silicon photovoltaic cells**
- V.16 J. Marro, Clemson University, United States;  
C. Okoro, Y. Obeng, National Institute of Standards and Technology, United States;  
K. A. Richardson, University of Central Florida, Glass Processing and Characterization Lab, United States  
**Impact of thermal history on grain size and grain size distribution of thermally cycled Cu-TSVs**
- V.17 J. Marro, Clemson University, United States;  
C. Okoro, Y. Obeng, National Institute of Standards and Technology, United States;  
K. A. Richardson, University of Central Florida, Glass Processing and Characterization Lab, United States  
**Temperature dependence of defect evolution and distribution in thermally cycled Cu-TSVs**
- V.18 K. Russell, S.K. Sundaram, Alfred University, United States  
**Terahertz properties of borate glasses**
- V.19 D. Litzkendorf, S. Grimm, K. Schuster, S. Pochert, A. Schwuchow, J. Dellith, C. Mühlig, H. Bartelt, Institute of Photonic Technology, Germany;  
A. Gebhardt, VITRON Spezialwerkstoffe GmbH, Germany;  
S. Schippel, LAYERTEC GmbH, Germany  
**Yb-doped lanthanum/yttrium aluminum silicate glasses for laser applications**
- V.20 A. Saberi, University of Bayreuth & TAZ Spiegelau, Germany;  
A. Rosin, K. Kyrgyzbaev, T. Gerdes, M. Willert-Porada, Chair of Materials Processing, Faculty of Engineering Science, University of Bayreuth, Bayreuth, Germany;  
A. Fueller, Füller Glastechnologie GmbH, Germany  
**Continuous processing of low T<sub>g</sub> optical glasses in electric heated mini-melter**

## Poster-Show

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- V.21 C. Bischoff, R. K. Brow, Missouri University of Science & Technology, United States;  
R. Qiu, P. Ehrmann, K. Schaffers, T. Suratwala, Lawrence Livermore National Laboratory, United States  
**The effect of local oxygen environment on the Cu<sup>2+</sup> UV-VIS absorption bands**
- V.22 N. Lonroth, B. Aitken, M. Badding, Corning Incorporated, United States  
**Phosphor in glass color conversion plate**
- V.23 B. Gleason, Clemson University, United States;  
P. Wachtel, K. Richardson, University of Central Florida, United States;  
H. Qiao, N. Anheier, Pacific Northwest National Laboratories, United States  
**Optical property extrema in the GeAsSe ternary system**
- V.24 B. Nabil, C. Abdellah, B. Djamel, IOMP, Ferhat abas University setif 1, Algeria  
**Wear of the alumina abrasive grains bound into grinding pellets**
- V.25 B. Nabil, IOMP, Ferhat abbas setif 1, Algeria;  
C. Abdellah, B. Farouk, IOMP, Ferhat abas university setif 1, Algeria;  
B. Djamel, iomp, Ferhat abbas setif 1, Algeria;  
V. Herold, Friedrich-Schiller-University Jena, Germany  
**Mechanical behavior of polyurethane polishers used in optical polishing**
- V.26 T. Gonçalves, R. Moreira, H. Eckert, A. de Camargo, Physics Institute of São Carlos, University of São Paulo, Brazil  
**Structural-functional correlations in rare earth (RE = Er<sup>3+</sup>, Yb<sup>3+</sup>) doped oxyfluoride glasses**

## VI. Nuclear Waste Forms – Fundamentals and Application

- VI.1 M. Cowley, C. Steele, Sellafield Ltd, United Kingdom  
**Vitrification of high molybdenum containing wastes from post operational clean out of highly active liquor storage tanks**

## VII. 2nd International Glass Fiber Symposium

- VII.1 S. Bartolomey, S. Krogel, R. Conradt, RWTH Aachen University, Institute of Mineral Engineering, Department of Glass and Ceramic Composites, Germany  
**Density titration in an aqueous solution of sodium polytungstate**

- VII.2 S. Matthes, M. Groß, L. Hübner, H. Hessenkemper, J. Ryssel, TU Bergakademie Freiberg, Germany  
**CompGlass – low-cost fibre-reinforced aerated concrete**
- VII.3 O. Prokhorenko, L.G.P. International, LLC, United States  
**Tracing inhomogeneity of melt absorption, and solid particles in fiber glass forming system by computer modeling**
- VII.4 A. Trofimov, V. Khazanov, NPO Stekloplastic, Russian Federation  
**Innovative future of glass fibers**
- VII.5 S. Danto, J.-C. Desmoulin, Y. Petit, L. Canioni, E. Fargin, T. Cardinal, University of Bordeaux, France  
**Composite silver-doped phosphate-based glass fibers: Preliminary results and further development**
- VII.6 K. Philipps, RWTH Aachen University, Institute of Mineral Engineering, Germany;  
R. P. Stoffel, R. Conrad, R. Dronskowski, RWTH Aachen University, Germany  
**High modulus oxide glasses**
- VII.7 J. Krzoska, Institut für Textiltechnik der RWTH Aachen, Germany  
**Developing of fine glass staple fiber yarns for manufacturing nonflammable textiles**

# Exhibition of suppliers at 1st Joint Meeting DGG – ACerS GOMD

26 – 28 May 2014 in Aachen

## **Eurogress Aachen, Foyer**

The following companies will be represented:

- Binder & Co AG, 8200 Gleisdorf (A)  
[www.binder-co.com](http://www.binder-co.com)
- FLAMMATEC Ltd., 7501 Vsetin (CZ)  
[www.flammatec.com](http://www.flammatec.com)
- GLASS SERVICE INC., 7501 Vsetin (CZ)  
[www.gsl.cz](http://www.gsl.cz)
- Heye International GmbH, 31683 Obernkirchen, (DE),  
[www.hey-international.com](http://www.hey-international.com)
- HyGear, 6827 AV, Arnhem (NL)  
[www.hygear.nl](http://www.hygear.nl)
- ilis gmbh, 91052 Erlangen (DE)  
[www.ilis.de](http://www.ilis.de)
- Linde AG, Gases Division, 82049 Pullach, (DE)  
[www.linde-gas.de](http://www.linde-gas.de)
- LumaSense Technologies GmbH, 60326 Frankfurt (DE)  
[www.lumasenseinc.com](http://www.lumasenseinc.com)
- STG Combustion Control GmbH & Co KG, 03050 Cottbus (DE)  
[www.stg-cottbus.de](http://www.stg-cottbus.de)
- Verallia Saint-Gobain Oberland AG, 88410 Bad Wurzach (DE)  
[www.saint-gobain-oberland.de](http://www.saint-gobain-oberland.de)

(date: 28.01.2014)

# Social Programme

For all the items of the social programme a **special booking** at [www.dgg-gomd.org](http://www.dgg-gomd.org) is **required**.

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## Sunday, 25 May 2014

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**18.30**                    **Guided City Tour of the old town**

to

**20.00**

Meeting point:  
18.30 Tourist Information at Eisenbrunnen,  
Friedrich-Wilhelm-Platz, Aachen

The historic old town of Aachen invites to go for a stroll. Let yourself be guided through narrow alleys and across historic squares through the 2000 year-old history of Aachen. Experience all facets of Aachen, a modern city with beautiful historic town houses, many old and new fountains and innumerable stories all about the Cathedral and the town hall.

The City Tour ends in front of the Restaurant "Goldener Schwan".

from

**20.00**

**Dinner at Restaurant "Goldener Schwan"**

Markt 37, Aachen

As a special arrangement for our international guests, the menu offers an assortment of small portions of typical regional food "German tapas".

Beverages and meals have to be paid by each participant individually.

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## Monday, 26 May 2014

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**18.30**                    **Poster Show, Exhibition of Suppliers**

to

**21.30**

**and**  
**Welcome Reception (starting 19.30)**

**Foyer at Eurogress**

The three top posters of students or postgraduates will be awarded with 250, 175 and 100 EUR, respectively, during the banquet on Tuesday evening.

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## Tuesday, 27 May 2014

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**20.00**                    **Banquet**

to

**23.00**

**Eurogress, Europa-Saal**

During the banquet the three top posters will be awarded a prize each.

Performance of "Wall Street Theatre"

The perfect balance between comedy and artistry.

**18.30 “Speed Dating” with Professionals for Students**

to

**19.30**

RWTH Aachen University, Institute of Mineral Engineering, Department of Glass and Ceramic Composites, Mauerstraße 5

An opportunity will be provided to meet with experienced professionals from industry, research centers, and academia on a face-to-face level. The professionals' names will be announced at the conference website and at the registration desk. Groups of 2-3 students may address any questions of interest during table conversations. After 10-15 minutes, upon a sign, students groups will revolve and move to the next table. Please make use of this unique opportunity. The number of participants is limited.

**from**

**18.30**

**Barbecue for Students**

RWTH Aachen University, Institute of Mineral Engineering, Department of Glass and Ceramic Composites, Mauerstraße 5

**19.00 “An Imaginary Walk to Historical Sites of the City of Aachen”**

to

**20.00**

A Special Performance Comprising Music, Recitation, Sounds and Special Effects

Auditorium “Aula I” of the RWTH Aachen University, Templergraben 55

Trio Soli Sono, Aachen: Natalie Becker, Johanna Daske, Olaf Futyma: flutes  
Martin Daske, Berlin: composition, sound design  
Rainer Rudloff, Lübeck: recitation, drama



**18.30**                    **Reception at Lehrstuhl für Textilmaschinen-**  
to                            **bau & Institut für Textiltechnik (ITA) der**  
**21.30**                    **RWTH Aachen University**

Meeting point:

18.15 Main entrance of Eurogress (transfer by  
busses)

18.30 Otto-Blumenthal-Straße 1, Aachen

The Institut für Textiltechnik (ITA) belongs to the top 10-institutes of RWTH Aachen University. Its core competencies are the development of textile machinery and components, high performance fiber materials, manufacturing technologies and comprehensive process chains and the development of innovative textile based products in the sectors of mobility, civil engineering and living, energy and health.

The essential technology fields of its research are material and energy efficiency, functional integration and integrated production technologies.

Official Welcoming by Head of Department and Director of Institute, Prof. Dr. Thomas Gries.

Reception with barbecue and beverages.

A short tour of the institute will be offered to the participants.

**21.30**                    Departure of busses to Eurogress

# General Information

## Registration of participants

For participation in the 1<sup>th</sup> Joint Meeting of DGG – ACerS GOMD 2014 please register **online at [www.dgg-gomd.org](http://www.dgg-gomd.org)**.

The registration is to do

**by 25 April 2014 at the latest.**

The registration will serve for the compilation of the list of participants.

## Registration fees

Registration card (**early bird registration by 31 March 2014!**)

	<b>by 31.3.14</b>	<b>from 1.4.14</b>
DGG and ACerS GOMD member	€ 780	€ 860
Non-member	€ 890	€ 980
Student (oral presentation or poster)	€ 180	€ 200
Student	€ 230	€ 255
Retiree	€ 440	€ 485
Accompanying person (members of family)	€ 300	€ 330
Plant trips	€ 29	€ 29
Day ticket 2 <sup>nd</sup> International Glass Fibre Symposium	€ 225	€ 250

The Conference ticket for the Joint Meeting of DGG-ACerS GOMD includes the participation at the Glass Fibre Symposium, but the Glass Fibre Symposium can also be booked separately.

Turnover tax: the fees for the registration cards are not liable to turnover tax according to § 4, 22 UStG.

Payment should be made directly after receipt of invoice free of bank commission in Euro to DGG account at:

Postbank Frankfurt/M., BIC **PBNKDEFF**, IBAN **DE05 5001 0060 0055 6066 02**. **Please include invoice number and participant's name on all money transfers.**

**MASTER Card, VISA** and **American Express** are accepted for payment with credit card. Please note: **Credit card payment** involves an **additional fee of 5 %**.

## Cancellation

Cancellations have to be notified in writing to DGG office at [wiese@hvg-dgg.de](mailto:wiese@hvg-dgg.de).

We kindly ask your understanding that in the event of a cancellation of registration after 9 May 2014, 30 % of the respective registration fees will be charged. Fees for plant trips cannot be remitted.

## **Exhibition of Suppliers**

Within the framework of the Meeting suppliers will have the opportunity to display their products and services to the meeting participants. For further information on the exhibition terms, please contact:

Anzeigenverwaltung und Firmenausstellungen  
der DGG  
Ms Carmen Morbitzer  
Siemensstraße 45  
63071 Offenbach  
P: +49 69 975861-26; F: +49 69 975861-99  
morbitzer@hvg-dgg.de

## **Conference language**

The conference language is English.

## **Conference venue**

EUROGRESS Aachen  
Monheimsallee 48  
52062 Aachen (Germany)  
P: +49 2419131-0; F: +49 2419131-200  
info@eurogress-aachen.de  
www.eurogress-aachen.de

### **Non-smoking area!**

In order to guarantee non-smoker protection the conference centre is smoke-free. Smoking areas are located in front of the main entrance.

## **Hotel accommodation**

The room reservations at Aachen hotels will be handled by the Aachen tourist service e.v. Participants of the conference can book their accommodation online via [www.aachen-congress.de/hotels/dgg-gomd2014](http://www.aachen-congress.de/hotels/dgg-gomd2014) (Reservations **by 25. April 2014** at the latest).

Alternatively it is possible to book by telephone using the key word **“DGG-GOMD”** via

aachen tourist service e.v.  
Postfach 10 22 51  
52022 Aachen (Germany)  
P: +49 24118029-50 or -51; F: +49 24118029-53  
incoming@aachen-tourist.de  
www.aachen-tourist.de

## Conference office

The conference office is located in the Foyer of the conference centre "Eurogress". Opening hours are:

Sunday,	25 May 2014	16.00 to 19.00
Monday,	26 May 2014	8.00 to 20.00
Tuesday,	27 May 2014	8.00 to 18.00
Wednesday,	28 May 2014	8.00 to 18.00
Thursday,	29 May 2014	8.00 to 18.00
Friday,	30 May 2014	8.00 to 14.00

Conference Office phone: +49 2419131-540; fax: +49 2419131-541

## Cell phones

We kindly ask you to switch off your cell phones in the session rooms.

## Wireless LAN

During the whole conference the participants have free WLAN access to Network „Besuchernetz Eurogress“ with WPA/WPA2-Passwort „EurogressAC“.

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## Lunch break

At lunch hour on Monday till Friday a light meal will be provided at the Foyer (the meal is included in the meeting fees). For the very short break on Monday you will get a packed lunch.

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## Car Parking at Eurogress

The parking deck offers parking space for 600 cars (subject to charge): parking deck Eurogress, Monheimsallee 44, 52062 Aachen

## Conference documents

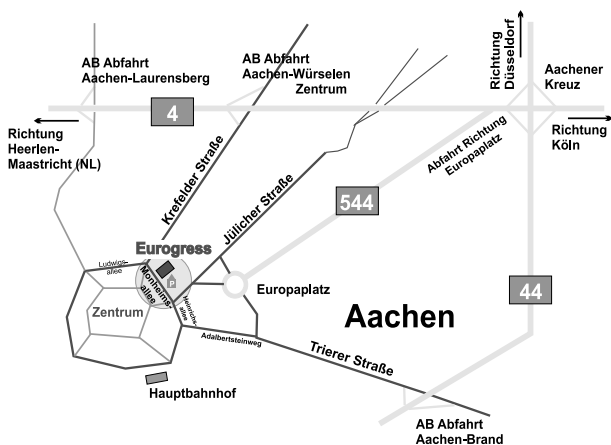
Conference documents **will not be sent out**; the participants are requested to collect them at the Conference office.

Every participant will obtain a USB stick containing the abstracts of the papers and posters and the list of participants at the Conference office.

## Leisure

Aachen – city of water and horses, famous Charlemagne, well-known for its universities and its gingerbread "Printen". Museums, shops and pubs in the picturesque old town complete the variety of life in the imperial city truly young at heart. Experience 5000 years of history in the centre of Europe. Discover the City of Aachen through the local tourist office: [www.aachen-tourist.de](http://www.aachen-tourist.de).

## Journey to Aachen



### By car

Aachen is a traffic junction located in the Three-Country Point linking Germany, The Netherlands and Belgium. The following freeways directly lead to Aachen:

From Cologne – Düsseldorf – Liège:

A4 (E40) “Aachener Kreuz”: follow A544, exit “Europaplatz” (freeway ends here), leave the traffic circle towards city center,

From the Netherlands:

A4 (E40) exit “Aachen Zentrum”, turn right towards city center.

Your navigational system will find Eurogress using the following address: Monheimsallee 48, 52062 Aachen. Visitors without a navigational system should orientate themselves by the urban signage “Eurogress – Casino – Kurpark”.

### By bus

Aachen contains a continuous local transportation network. From the central train station the Eurogress Aachen is accessible using the lines 3A and 13A towards “Ponttor”. You arrive at the fifth station “Eurogress/Spielcasino”. On workdays the buses run at 7-minute intervals. You can find your connection on the ASEAG webpage.

### By train

Due to its excellent connection to the public transportation network including IC/EC, ICE and Thalys tracks, Aachen is easily accessible from each European destination. Please inform yourself about your personal train connection on DB’s webpage [www.bahn.de](http://www.bahn.de).

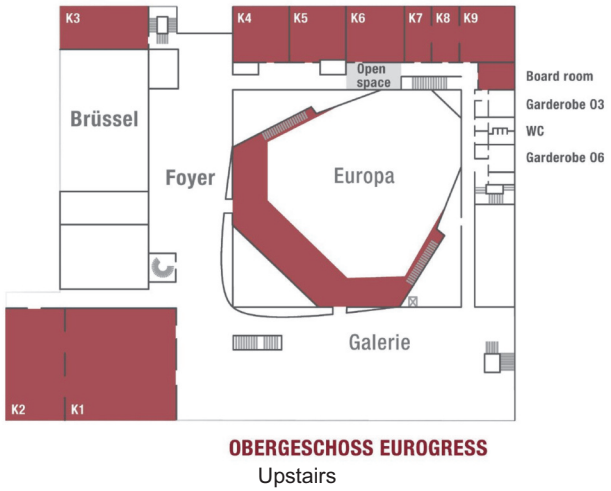
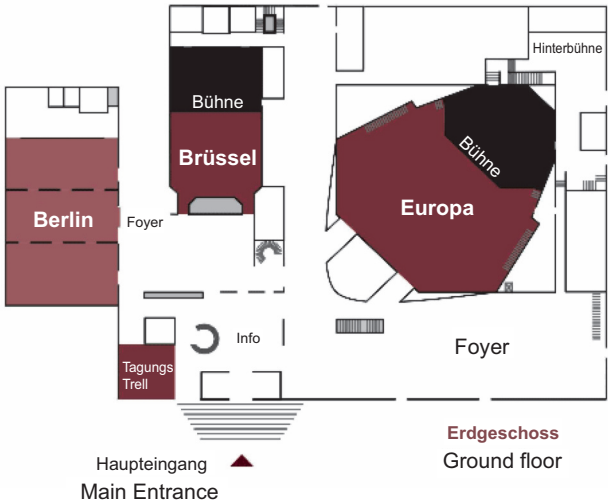
### By plane

Aachen is located near various international airports. Each airport offers comfortable transfer services to the City of Aachen.

Cologne-Bonn: 85 km,	Düsseldorf: 90 km,
Maastricht-Aachen (NL): 35 km,	Mönchengladbach: 65 km,
Liège (B): 50 km,	Brussels (B): 65 km.

Please consult the webpages of each airport for further information.

# Ground Plan Eurogress Aachen



Deutsche Glastechnische Gesellschaft e.V.

Siemensstraße 45  
63071 Offenbach (Germany)

P.: +49 69 9758 61-0

F: +49 69 9758 61-99

[dgg@hvg-dgg.de](mailto:dgg@hvg-dgg.de)

[www.hvg-dgg.de](http://www.hvg-dgg.de)

Conference Secretariat

P: +49 69 975861-29

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