

Investigation of Phase Relations and Reaction Pathways in Pnictide Superconductors

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- Investigate all potential high-temperature superconductors (HTS)

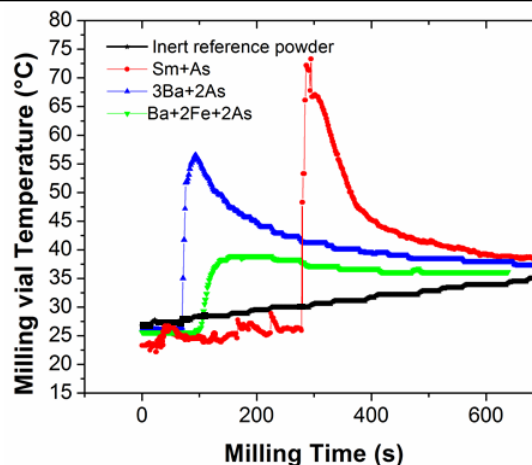
- Focus on cuprates and pnictides

- Developed pathway to form pnictides – mechanically activated self-sustaining reaction

- Currently studying BaFe_2As_2
 - Polycrystalline bulk - FSU
 - Thin films UW-Madison and Temple (Bicrystals, superlattices)

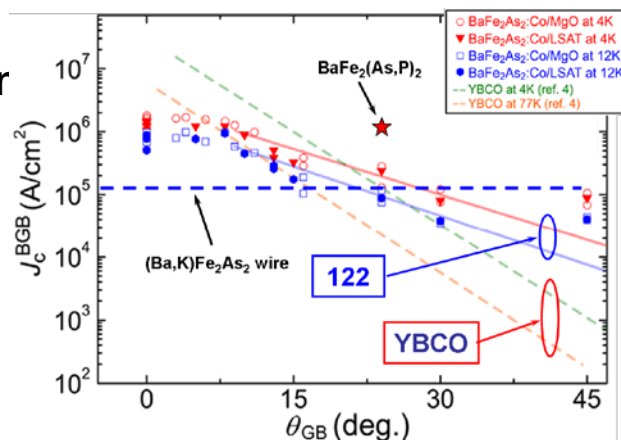
- Studying transport across grain boundaries, which is a key weakness in HTS

- REU students (UPRM) refurbished DTA for phase studies (2011); building a calorimeter (2012)



- Build calorimeter to investigate thermodynamics of pnictide reactions

Bicrystals - Current decreases with increasing grain boundary angle



Polycrystal - Current in (Ba,K)-122 crosses high-angle grain boundaries

