Solid Solution and Isotope Effects on the Properties of Boride Ceramics

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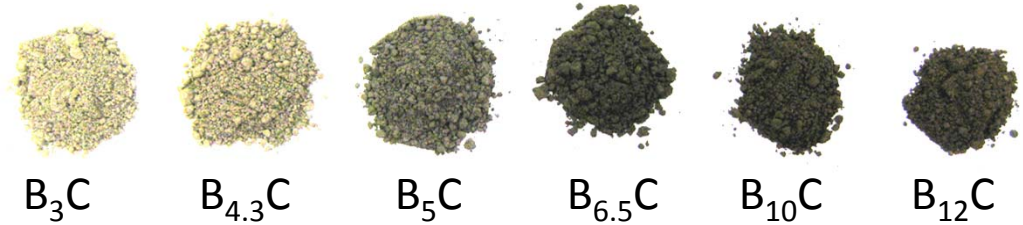
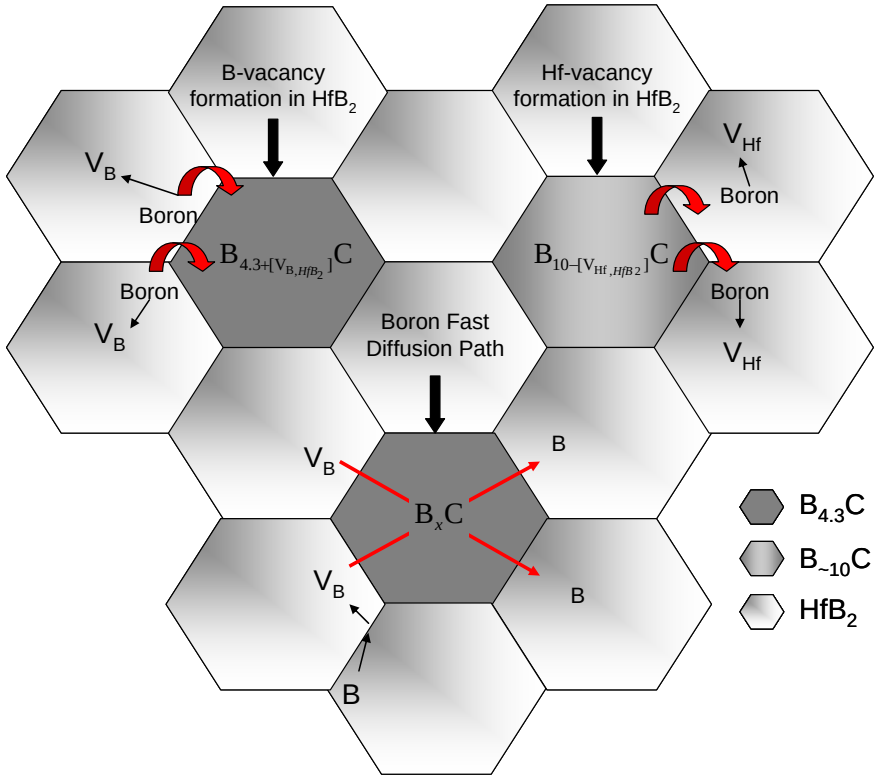
DMR 0906584

- **The project goal is to investigate the effects of carbon content, metal solid solution additions, and boron isotope ratio on diboride ceramics**
- **Hypotheses being investigated**
  - **Can C-free diborides be synthesized?**
  - **What impacts do carbon and other impurities have on thermal properties?**
  - **Can thermal properties be improved?**
  - **Why do solid solution additions improve oxidation resistance?**
  - **Can thermal properties and oxidation resistance be improved simultaneously?**
- **Significant progress has been made on understanding the role of B_4C during densification of HfB_2 and the effect of C content on ZrB_2 processing**





- **The project goal is to investigate the effects of carbon content, metal solid solution additions, and boron isotope ratio on the thermal properties and oxidation behavior of diboride ceramics**