
Contribution ID: **73** Type: **POSTER**

# Controlling FCCI with Pd in metallic fuel

*Tuesday, June 27, 2017 5:30 PM (1h 30m)*

A major factor limiting the lifetime of U-Zr based fuel is fuel-cladding chemical interactions (FCCI). As the fuel is burned, fission product lanthanides (Ln) interact with the Fe-based cladding, causing thinning of the cladding wall and eventual breach of the cladding. In order to extend the lifetime of the fuel in reactor, FCCI must be controlled. Palladium has been shown to be a promising metallic fuel additive to control FCCI due to the stable Pd-Ln intermetallics formed. The current investigation is focused on the characterization of U-Zr-Pd fuel, with and without added lanthanides. Characterization includes as-cast fuel as well as annealed fuel, and comparison to recent postirradiation examination results from U-10Zr fuel. Preliminary diffusion couple results between the fuel (with and without Ln) and iron will also be presented.

## Country/Int. Organization

United States/Department of Energy

**Primary author:** Dr BENSON, Michael (Idaho National Laboratory)

**Co-authors:** Dr KING, James (Idaho National Laboratory); Dr HARP, Jason (Idaho National Laboratory); Dr MARIANI, Robert (Idaho National Laboratory)

**Presenter:** Dr BENSON, Michael (Idaho National Laboratory)

**Session Classification:** Poster Session 1

**Track Classification:** Track 5. Fast Reactor Materials (Fuels and Structures) and Technology