OVERVIEW OF U.S. FUSION SiC/SiC ACTIVITIES

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OVERVIEW OF U.S. FUSION SiC/SiC ACTIVITIES

- Fiber properties
  - strength of advanced fibers
  - radiation effects on dimensional change, thermal conductivity, strength.
  - irradiation creep
- Thermal conductivity
  - in situ measurements: TRIST-TC1
  - thermal conductivity vs T: fibers
  - irradiation effects on fibers and composite
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- Materials development
  - composites with advanced fibers: Hi-NicS, tyranno SA, MER beta SiC fibers/crystalline matrix.
  - interface development.
  - high thermal conductivity: z stitched C fibers.
- Properties of composites
  - radiation effects on dimensional stability, thermal conductivity and strength.
  - uniaxial, 2-d and 3-d fiber orientations
- Materials Joining
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- Irradiation experiments
  - HFIR:
    + monolithic SiC, fibers, advanced composites
    + in-core- 12J: 500 C, 14J: 800 C, a few dpa
    + rabbit positions: 600-1500 C, void swelling, etc
  - ATR: fiber creep with KAPL
  - HFR: with Petten
  - He implant studies: with ISPRA and JUPITER prog.
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Collaborations

- JUPITER: all aspects
- JRC-Ispra: fiber creep, He implantation
- Petten: irradiations
- IEA
  + workshops
  + collaborative experiments