RaDIATE BNL BLIP Irradiation Run Planning VC Meeting 15
10.18.17

Present

CERN: Claudio Torregrosa
KEK: Taku Ishida
FNAL: Patrick Hurh, Bob Zwaska, Kavin Ammigan
ESS: Yongjoong Lee
BNL: Nick Simos, Dohyun Kim
Oxford: Slava Kuksenko
PNNL: David Senor, Andy Casella, Bob Orton
FRIB: Frederique Pellemoine
RAL: Mike Fitton

Notes

- New DS Ti 2 capsule update (T. Ishida presentation)
  - Capsule thickness is same as DS Ti 1 capsule and will now include tensile, microstructural and meso-scale fatigue foils
  - Thermal analysis of capsule estimates peak temperature of 120 °C, and heat flux out of SS windows of 36 W/cm^2 (He atmosphere in capsule)
  - Multiple Ti grades now included in capsule (more details in KEK presentation)
  - Planning to ship all capsule specimens to FNAL by early December to allow for specimen dimensional measurements, assembly and capsule welding prior to beam time
    - FNAL also fabricating back-up specimens in case there are any delays
  - Laser machining of meso-scale fatigue foil at Oxford not expected to take long once foil in final thickness is received
  - Need to check the effect of density/composition difference of the various Ti grades on energy degradation

- New CERN capsule update (C. Torregrosa presentation)
  - New capsule replaces the Si capsule from BLIP run 1
  - Total capsule thickness (incl. windows) is now 5.3 mm
    - 0.3 mm smaller than Si capsule
  - More details on specimen types and thicknesses shown in CERN presentation
  - Peak temperature in capsule is estimated to be about 330 °C (vacuum environment)
    - Heat flux out of windows ~ 40 W/cm^2
  - Plan is to ship assembled/welded capsule to BNL by the end of December

- New capsule information will be sent to BNL as soon as possible so that FLUKA energy calculations and safety document can be updated

- Capsule opener device
    - PNNL presented initial design of capsule opener (slide 7 in meeting slides)
    - Inputs on design
        - Add capability to move the cutting wheel in and out in the radial direction to help locate exact spot for easy cutting
        - Come up with a mechanism to vertically clamp down on the capsule during opening
        - Ensure that capsule fits tightly into slot to avoid capsule from rotating during cutting
    - Dummy capsules from FNAL and CERN will be shipped to PNNL by the end of November

- Plan is to start the irradiation around mid-January and run for about 4-5 weeks.