

## **Summary (Laboratory Experiments)**

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- **Plasma Interactions with Beryllium Surfaces (R. Doerner)**
  - PISCES-B D->Be sputtering yields are 5-10x lower than TRIM
  - Drop due to surface morphology (2x) & near surface D (2-3x)
  - When Be is seeded upstream to balance the D->Be mass loss, mass loss remains the same (→ change in Be gross erosion)
  - Reduced sticking coefficient or increased re-erosion?
- **Overview of PMI at SNL-CA (D. Buchenauer)**
  - Working on making robust T retention measurements in TPE
  - Developing continuum models (H in W) and MD (H on W)
  - New study to examine early-time W fuzz growth & PMI in CTs
- **Study of Li on PFCs in IIAX (D. Andruczyk)**
  - Found reduction in chemical erosion species with Li-graphite
  - Demonstrated wetting of boronized Mo (carborane precursor)
  - Developing an electrostatic Li injector for NSTX

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## Research Needs/Gaps (Laboratory Experiments)

- **H / He trapping and transport [W (Mo), Be, C, Li (SnLi, Ga)]**
  - *T trapping in neutron damaged W*
  - *Radiation enhanced permeation*
- **Behavior of H / He at the surface & near surface**
  - *Design expts. to address processes that affect recycling?*
- **Surface modification**
  - *Erosion / redeposition and evaporation – Li?*
  - *Composition (mixed materials) – H trapping and transport?*
  - *Morphology changes – Mechanism for W fuzz growth?*
  - *Surface chemistry – Experiments to address C-O-Li-H system*
- **Transient phenomena**
  - *Plasma vs. laser to understand material response*