Abstract Submitted
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An Overview of Recent PISCES Program PMI Results[1] GEORGE TYNAN, RUSSELL DOERNER, SHOTA ABE, MATTHEW BALDWIN, JOSEPH BARTON, RENKUN CHEN, JORDAN GOSSELIN, ERIC HOLLMANN, DAISUKE NISHIJIMA, MICHAEL SIMMONDS, Univ of California - San Diego, YONG WANG, los alamos national laboratory, JONATHAN YU, Univ of California - San Diego — The PISCES Program is focused on fundamental PMI studies of Be and W-based solid plasma facing components under steady-state and transient conditions. We will show results from studies in W, Be and mixed W-Be material systems. Topics of investigation include formation of near-surface nanobubbles from He plasma ion implantation, growth of W-fuzz from these bubbles in steady-state and transient conditions, D retention in Be and W and development of a D-retention model for both H/D isotope exchange and displacement damage experiments. Initial studies of PMI in displacement damaged W are also presented, showing the effect of damage and exposure temperature on D retention, D diffusion, W thermal conductivity. Be-based results include morphology evolution under high plasma flux exposure, Be erosion mechanisms, and retention in Be-based materials. Future plans and connections to fusion energy system requirements will be discussed.

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