Analyses of samples from AUG He experiments

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AUG He - DIM-II probe head

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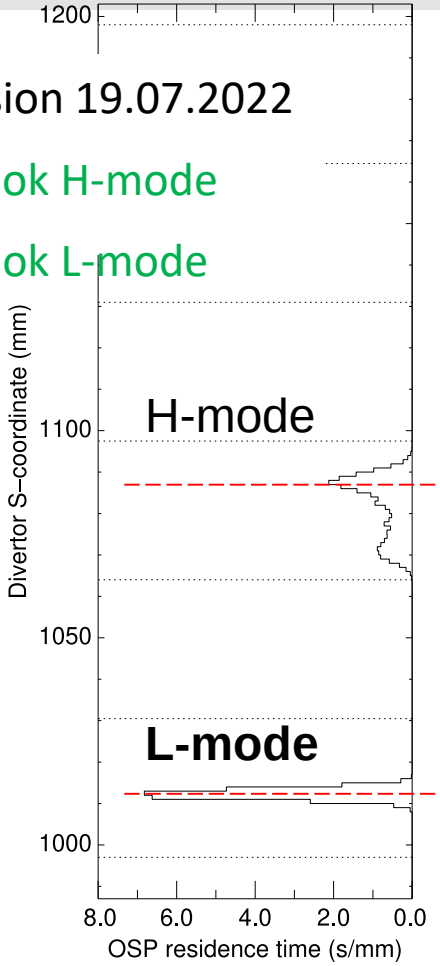
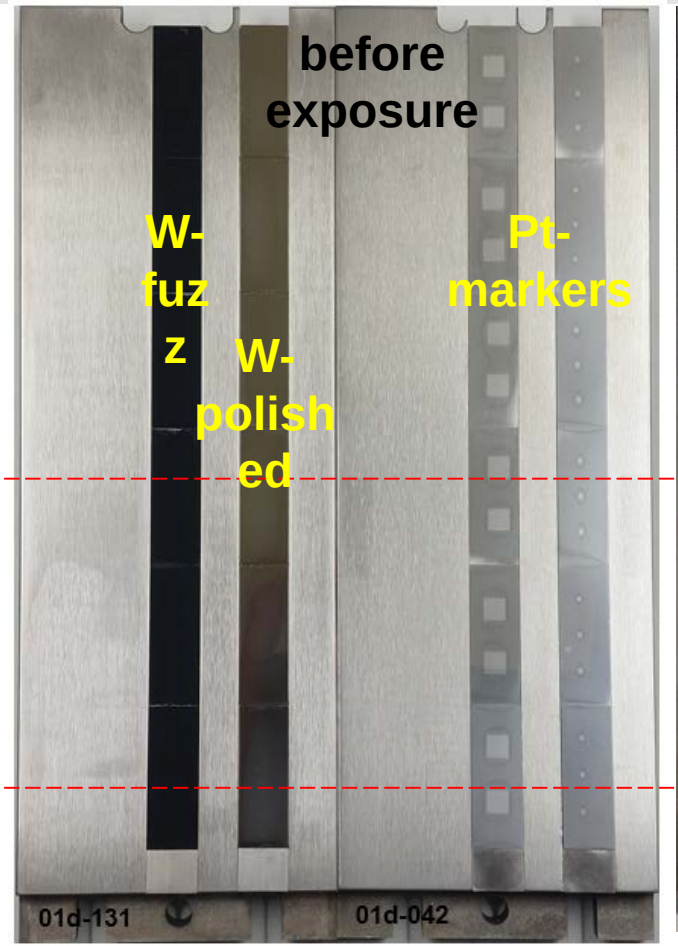
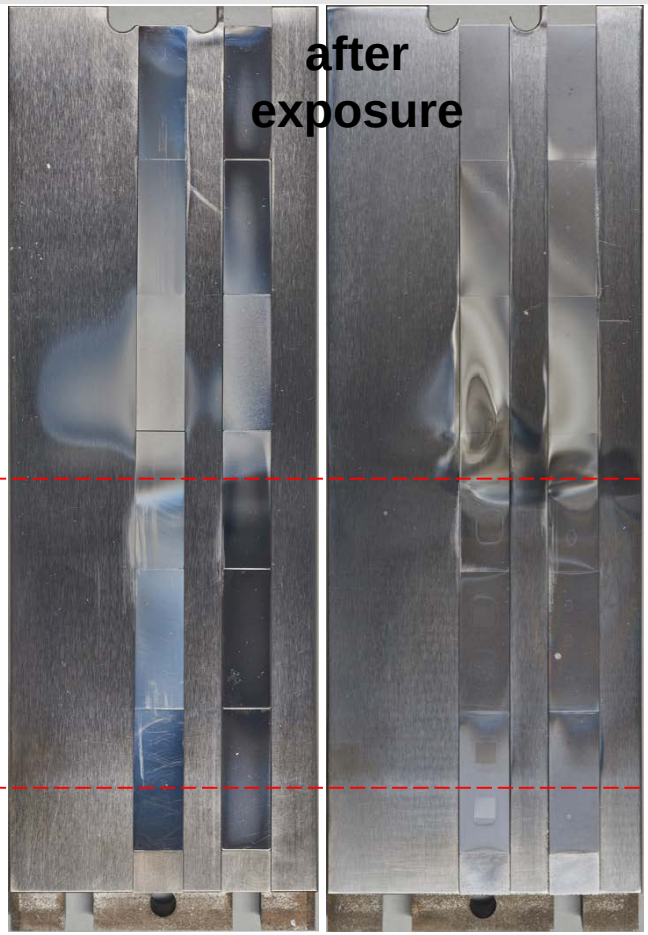
- 8 ok H-mode
- 6 ok L-mode







Summary of 2022

- During **PSI-2 He** plasma exposure **fuzz** with thickness of **600 – 800 nm** was produced
- 48 **FIB cross-section** with line marking was prepared on 6 polished and 6 samples with PSI-2 fuzz
- Prepared samples exposed to 8 H-mode and 6 L-mode **AUG He** discharges

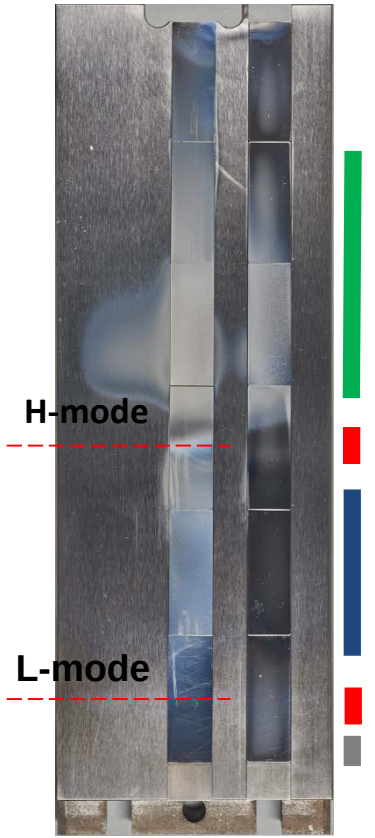
L-mode

- **Below L-mode** OSP **no visible** surface modification
- **Near the L-mode** OSP **erosion** of PSI-2 fuzz as well polished surface was observed
- **Above L-mode** OSP **deposition** of W was found.

H-mode

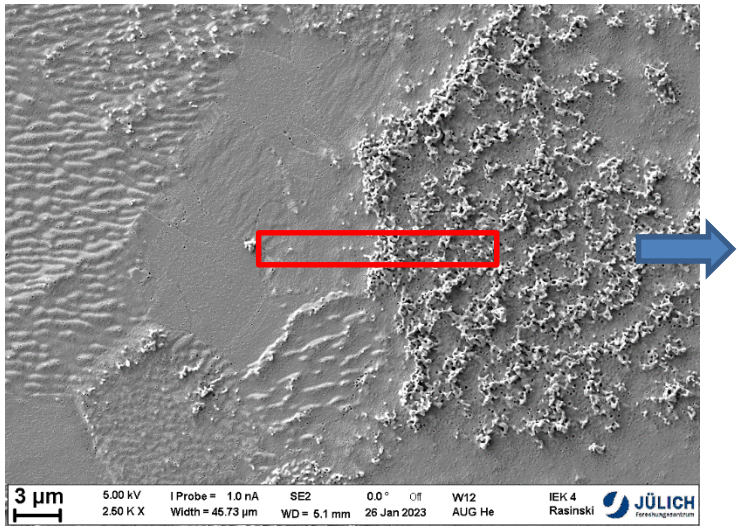
- **Below H-mode** OSP **deposition** of W was found
- **Near the H-mode** OSP **erosion** of PSI-2 fuzz as well polished surface was observed
- **Above H-mode** OSP **new fuzz** was formed. Fuzz from PSI-2 removed/modified.

- No traces of Mo was found
- Visible traces of **arcing**, mostly at fuzzy surfaces. Arcs removed the fuzz but did not damage underlying material.

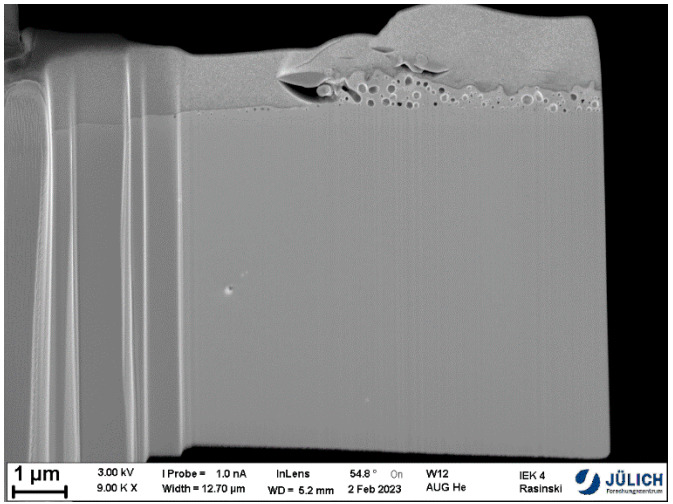


Plans for 2023

- Correlation between exposure conditions (surface temperature, ion flux, etc.) and fuzz formation.
- Comparison between linear devices and tokamak environment for fuzz formation. connection with SP A – exposures at PSI-2
- Investigation on the W grain orientation and fuzz formation by means of TEM/EBSD sub-surface nano-bubble formation.



SEM image of a AUG He exposed surface. Visible localized fuzz formation



SEM image of a preared TEM lamella.