

Accelerated lifetime tests of ITER-like tungsten monoblocks in Magnum-PSI (T.W. Morgan et al.)

TECH/3

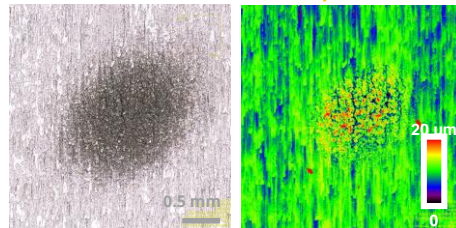
1. W Mock-up chain exposed to combined plasma and up to 10^6 ELM-like (laser) pulses in Magnum-PSI



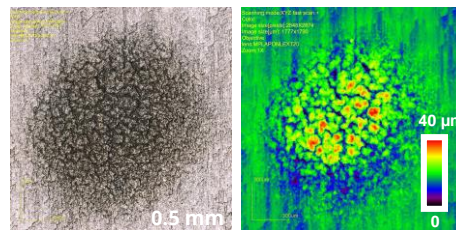
2. Comparing to similar e-beam data indicates additional effects due to plasma (surface modifications, “rounded” roughened surfaces)

3. Increasing surface base temperature leads to a decrease in resistance to fatigue cracking

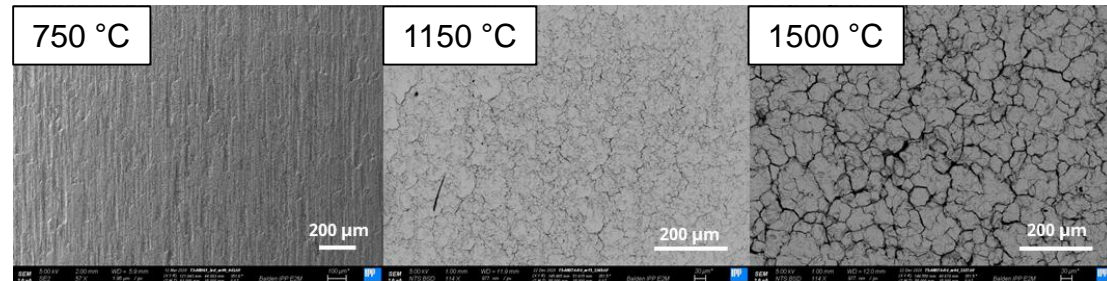
1150 °C, $\Delta T=310$ K



H



H+Ne



4. Seeding impurities increase surface roughening compared to pure H discharges

5. Results indicate importance of plasma effects on fatigue damage of W

