Development and validation of the MEMOS-U code (link with WP TE – WEST/AUG) (VR)

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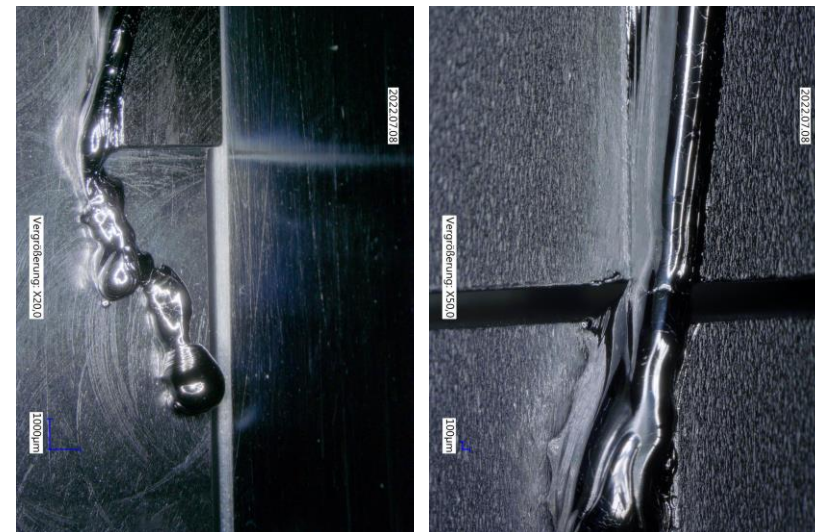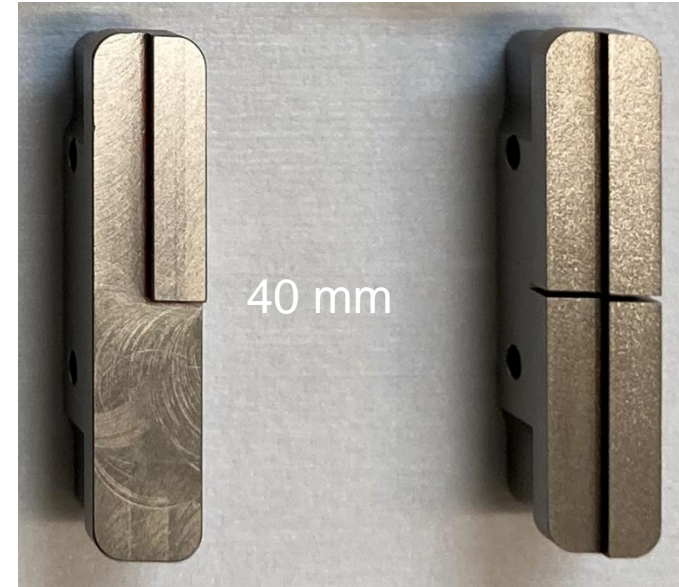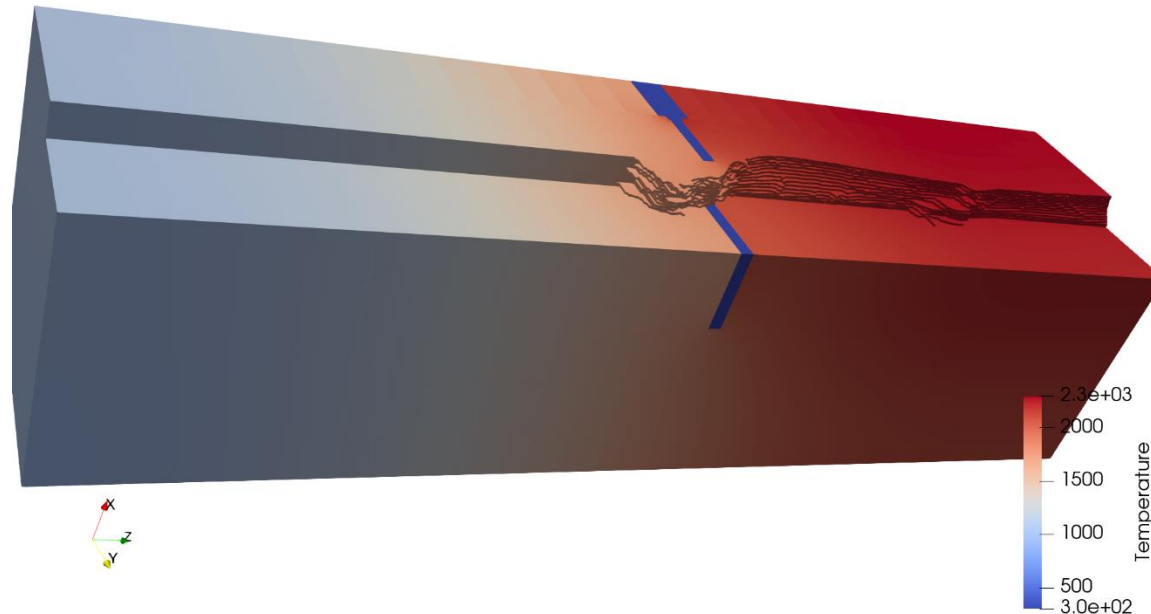
Gap bridging AUG 2022 experiment

RT-16: W melt flow traversing toroidal gaps and edges

TFLs: A. Hakola, E. Tsitrone   **SCs:** Y. Corre, K. Krieger

MEMENTO simulations are being completed, manuscript in progress

Complex tile and wetting geometry (gap, step, Several surfaces with heat and cooling fluxes imposed)

New WEST experiment

Controlled sustained W-melting on a poloidal sharp leading edge introduced into a W monoblock on one of the actively cooled ITER-like plasma-facing units in the lower divertor.

Y. Corre et al, Phys. Scr. **96** (2021) 124057
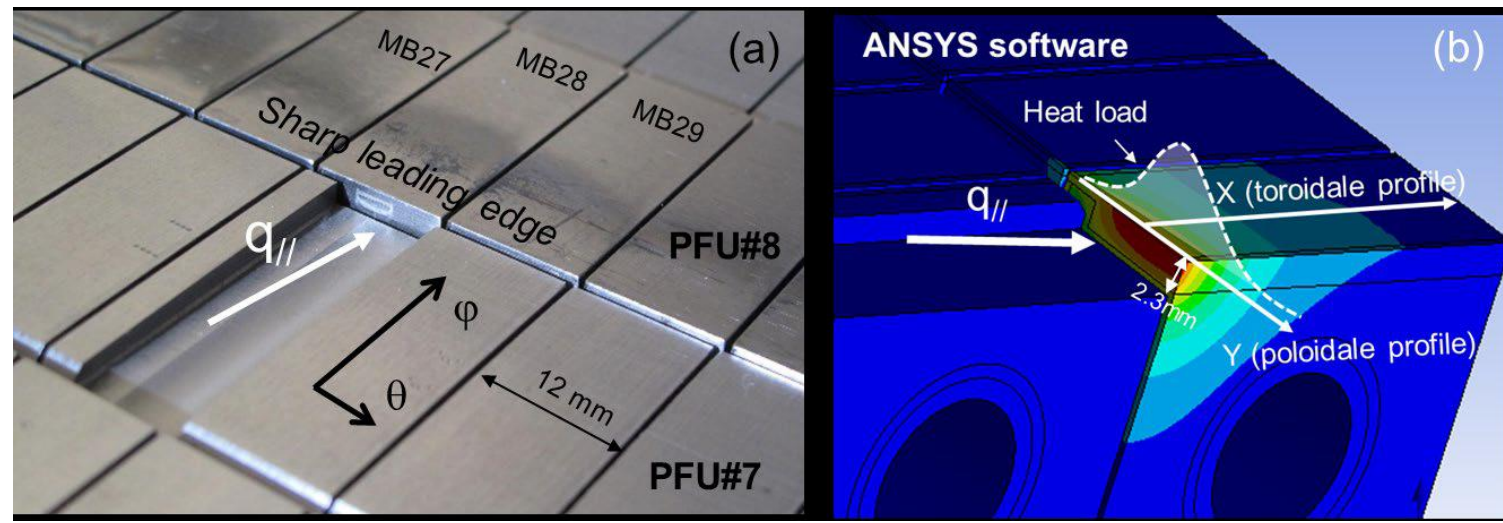
MEMENTO simulations of the first experiment:
Melt volume exsibits high sensitivity to small power variations

New experiments: proposal for PWIE experiment on effect of the reduction of the pre-recrystallization thermal conductivity on melting onset and gap wetting by ultra-thin melt layers have been selected

New experiment 2023:
• increased HF and optimized wetted area → deeper melt pool
• predictive modelling to optimized geometry to enable melt to reach and wet the edge or bridge the gap
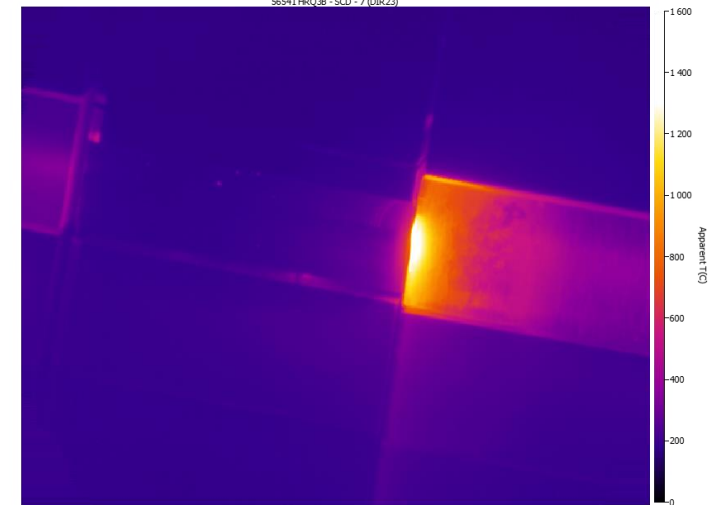
RE-induced PFC damage

- New project started 2023

- The simulations of MeV RE energy deposition in PFCs will be performed with the GEANT4 Monte Carlo simulation toolkit. These results will serve as input to melt motion modelling by the in-house MEMENTO code

- PhD position advertised
https://kth.varbi.com/en/what:job/jobID:588574/where:4/

  Plan to hire the new student during summer

- Preparatory work has been carried out: identifying electron/photon/positron transport processes of interest, their state-of-the-art physical description and the respective physical models implemented in the GEANT4 electromagnetic package.

- Master student has started his thesis and building relevant Geant4 set-ups for modelling (1-50 MeV) electron transport in the metal