



Status of AUG samples availability in 2022 and plans for analyses in different labs (MPG)

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AUG: Overview of sub-tasks



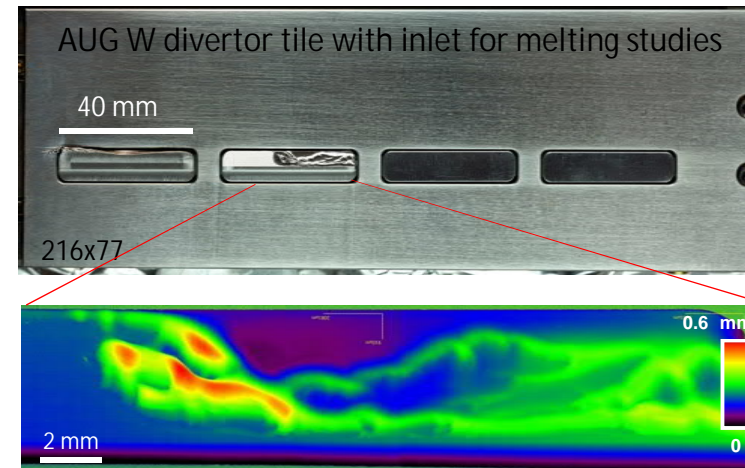
	Priority 2022	Sub-task	Coordination / samples	SEM / EDX / FIB / OM – pre	RBS / NRA - pre	DIM-experiment	SEM / EDX / FIB / OM - post	RBS / NRA - post	Evaluation	Other institutions	Status	Publication
New sub tasks	1	AUG He-campaign-2022	ongoing	waiting	waiting	future	waiting	waiting	waiting	ongoing	ongoing	pending
	2	AUG depo-cracks	no	no	no	campaign integrated	ongoing	no	ongoing	no	ongoing	PSI 2022
	3	Melting (Ir, Nb)	Yes new	no	no	Mar 2020 Apr 2022	done / waiting	no	ongoing	no	ongoing	ongoing
Continuation of sub-task from 2021	4	Au-marker (net/gross erosion)	2020	done	done	9.7. 2020	done	done	ongoing	ongoing	ongoing	pending
	5	Roughness (erosion)	2020	done	no	9.7. 2020	done	done	ongoing	ongoing	ongoing	pending
	6	B-dropper (2 nd - MEM)	yes	done	done	8.6. 2021	done	done	ongoing	no	ongoing	PSI 2022
	7	Gap load (2 nd - rev/co-field)	Yes	done	done	18.3.2021	done	no	done	done	finished	ongoing
	8	IR-rel. tile	Yes	no	no	Mar 2021	done	no	done	no	ongoing	no
	9	Arc inserts	no	no	no	campaign integrated	done	no	done	no	ongoing	finished

Sub-task: Melting ⁽³⁾



- Analyses of samples resulting from melt experiment (Nb, Ir) (2021-05-07) and scheduled new DIM experiment (12.04.2022)
- Post-characterization: evaluation of deformation by melting (CLSM) → new sample for AUG exposure in 2022 to study bridging of gaps by melt
- Preparation of publication → ongoing

Example data of experiment 2016



Nb-sample after experiment 2021

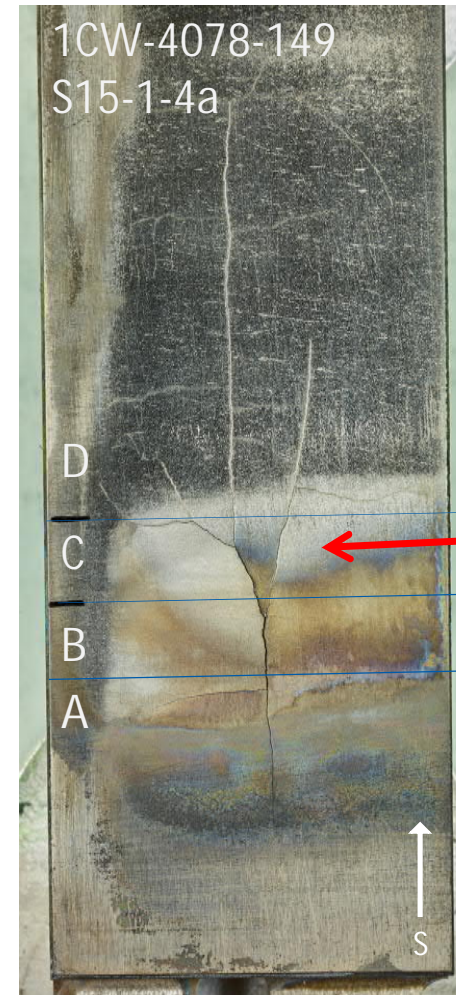


down up
S-coordinate

Sub-task: AUG depo cracks (2)



- Divertor tile after entire campaigns
→ Visual inspections show **cracking**
- 1st microscopic analyses show unexpected surface features → **detailed SEM analyses required**



Tile cut into four pieces for metallographic investigations

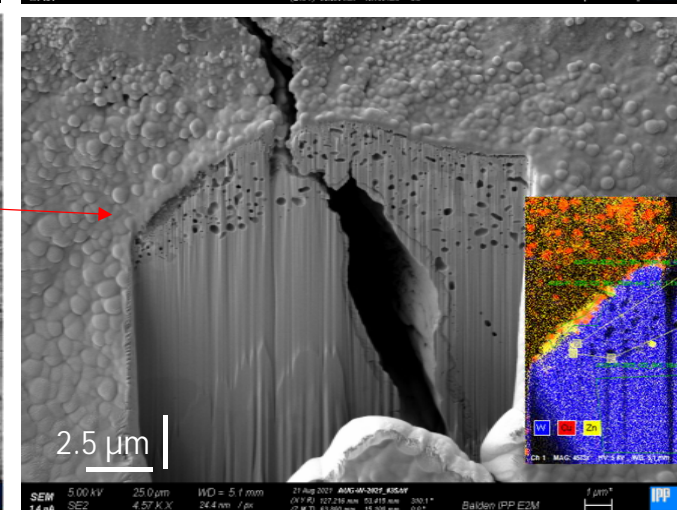
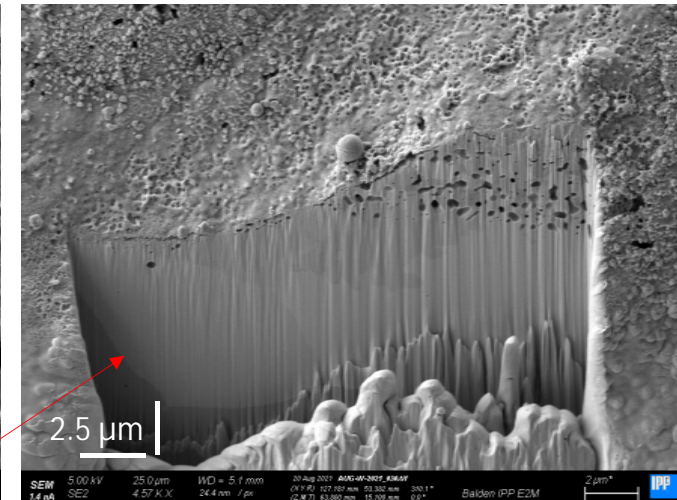
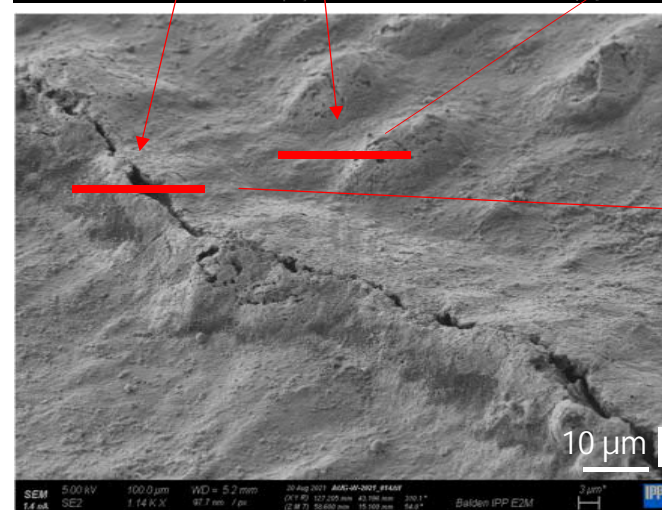
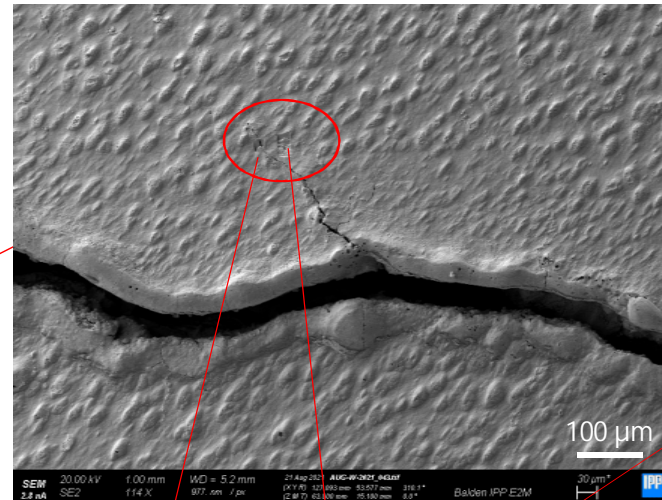
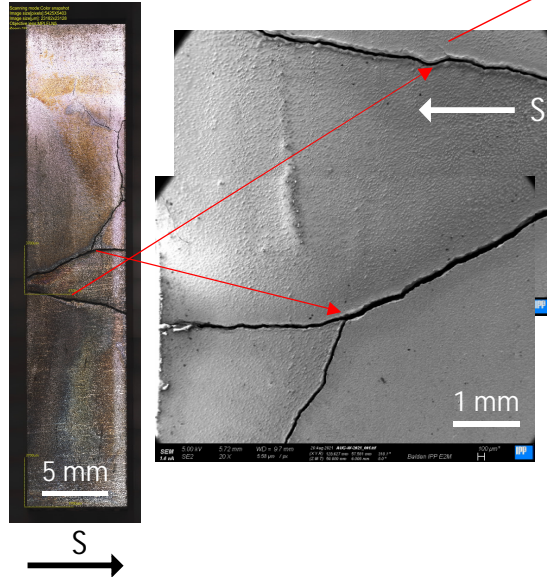


Sub-task: AUG depo cracks (2)

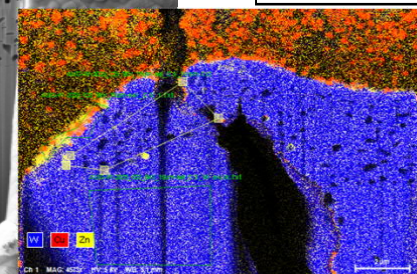
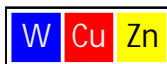


AURIGA analyses of
features beside cracks

S15-1-4a-C



Tungsten
foam
(fuzz ?)



Sub-task: AUG depo cracks (2)



- Proposed Analyses of tiles from different sectors (statistical sound analyses) and dismantled after different campaigns
 - SEM/FIB and CLSM: Analysis the surface feature → partly done
 - Metallographic investigation of cracking and microstructure (grain growth) → ongoing
- 1st results: PSI-2022 (V. Rohde)

Sub-task: AUG He-campaign-2022 ⁽¹⁾



- Proposed experiment with DIM during AUG He-campaign summer 2022

Follow-up experiment to DIM exposures on 16.07.2019 and 1.12.2015

- Two DIM tiles with 4 rows of 6 insert samples will be exposed
 - one row: **W samples mirror polished** surface to analyze fuzz layer formation in AUG
 - one row: **W samples with pre-established fuzz** to determine fuzz erosion
 - one row: **Pt-markers** on Mo-coated graphite (follow-up of roughness and marker experiments of the last years (see sub-task 4 & 5) to determine net/gross erosion
 - one row: **W/CFC samples** supplied from JET for W layer stability and life time study

- Preparation at IPP:

- Supply of polished W-inserts → **done**
 - ready to ship for exposure PSI-2/FZJ (GLADIS/MPG?)
 - pre-characterization (SEM/FIB-cuts) (FZJ, MPG)
- Supply of graphite inserts → **soon ready**
 - ship for **Mo/Pt coating (VTT)**
 - pre-characterization (SEM, IBA) (MPG, **RBI?**)

- Pre-characterization

- Needed analyses still under discussion

- Post-characterization

- Needed analyses still under discussion → **FZJ, MPG, JSI, RBI**
- Will extend into 2023!



AUG: Overview of sub-tasks



New sub tasks

Continuation
of sub-task
from 2021

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