

Monday 7th September

08.45 – 09.00 Registration

09.00 – 09.10 Welcome by D Juul Jensen

09.10 – 10.00 Evolution and cessation of the bainite transformation (Keynote talk)

H K D H Bhadeshia

10.00 – 10.20 In-Situ SEM characterisation of retained austenite decomposition during tempering of low-alloy steel

G Fidler, M Taylor, K Yan and E J Pickering

10.20 – 10.50 Connecting microstructural features with hydrogen uptake and mechanical response in metallic alloys (Invited talk)

M J Duarte, J Rao, L Bierbrodt and G Dehm

10.50 – 11.20 Coffee break

11.20 – 11.50 Multi-peak diffraction analysis for enhanced orientation mapping in dark-field X-ray microscopy of deformed metals using Darling (Invited talk)

A Henningsson, F T Frankus, A A W Cretton, A Shukla, A P Gayoso Padula, M La Bella, J Haack, S Staeck, H F Poulsen and G Winther

11.50 – 12.10 Challenges in mapping pearlite using 3D synchrotron techniques

L Lesage, J Ball, J Ahlström, W Ludwig, A Shukla and C Yıldırım

12.10 – 12.30 Microstructural evolution and deformation mechanisms in Fe-Mn-Al-Ni-C compositionally complex steels

Z Wang

12.30 – 12.50 Effects of strong carbide-forming elements on low-temperature tempering kinetics in high-carbon martensite

Y Zhang, Y Yanai, W Gong, S Harjo, G Miyamoto and T Furuhashi

12.50 – 13.45 Lunch

- 13.45 – 14.35 Microstructural evolution during deformation of heterostructured dual-alloy composites (Keynote talk)
*E Cantergiani, Z Zhang, M Preuss and **P J Withers***
- 14.35 – 14.55 Direct visualization, segmentation and quantification of dislocation cells in cold-rolled Fe-3% Si using dark-field x-ray microscopy
***A Shukla**, A Henningsson, J Haack, A A W Cretton and C Yildirim*
- 14.55 – 15.15 In-situ grain rotation in annealing via polycrystal energy-resolved Laue diffraction
***M R Barnett**, J Wang, R K W Marceau, R Li, Y Chen, A Pasquini, S Barnett, A Stevenson and P A Lynch*
- 15.15 – 15.35 In-situ observation of dislocation patterning in [110] aluminium single crystal using dark-field x-ray microscopy
***A A W Cretton**, A G Padula, A Zelenika, F Frankus, F B Grumsen, C Yildirim, C Detlefs, G Winther and H F Poulsen*
- 15.35 – 15.55 In-situ characterization and modeling of early-stage grain-scale behaviors under HCF-relevant multiaxial loading
*Y Zhang, M Yaghoobi and **J V Gordon***

Social event and dinner in Roskilde

- 16.00 Departure by bus from Risø Campus
- 16.30 Visit to Roskilde Cathedral
- 18.00 Dinner at restaurant Rådhuskælderen

Tuesday 8th September

- 09.00 – 09.50 Voxel based microstructure design by electron beam additive manufacturing (Keynote talk)
C Körner, *Y Westrich and B Wahlmann*
- 09.50 – 10.10 Evolution of dislocation cell structures during laser powder bed fusion by controlled thermal cycling
X Liu, M Li, W Liu, X Huang and A Godfrey
- 10.10 – 10.30 Layer-dependent microstructure characteristics in LPBF stainless steel 316L
X Wang, *W E Alphonso, M Bayat and T Yu*
- 10.30 – 10.50 Influence of Ti powder additions on microstructure and mechanical performance of PBF-LB AA6061
K Zhang, A Elashery and K Marthinsen
- 10.50 – 11.20 Coffee break and group photo**
- 11.20 – 11.50 Mechanism-based crack mitigation in steel-copper multi-material laser powder bed fusion (Invited talk)
A Özsoy, W Hearn, S Gaudez and S Van Petegem
- 11.50 – 12.10 In-situ laser heat treatment during laser powder bed fusion of 17-4 PH stainless steel
Z Pan and *V K Nadimpalli*
- 12.10 – 12.30 Microstructure and microhardness analyses of meso-scale heterogeneous super duplex stainless steel fabricated via LPBF from Ni-enriched 2507 powder
P Snopiński, *J Wawrzynek, M Król, M Kotoul and Z Brytan*
- 12.30 – 12.50 Advanced microscopy for unlocking process-microstructure-property relationships in laser powder bed fused duplex stainless steels
X Y He and *S Primig*

12.50 – 13.45 Lunch

- 13.45 – 14.15 Following the evolution of intragranular microstructure in metallic materials by DCT and scanning 3DXRD (Invited talk)
H Fang, G Macieira, L Salvo, J A D Ball, J Wright, P Lhuissier and W Ludwig

14.15 – 15.15 Poster pitches

15.15 – 16.15 Poster session with refreshments

- 16.15 – 16.35 Defining microstructural features of additively manufactured hot work steels and predicting mechanical properties using CNNs
A Khan, F Adjei-Kyeremeh, P Kowitwarangkul, S Richter, M Rom and I Raffels
- 16.35 – 17.25 Evolving process dynamics governing porosity and porosity-microstructure interactions in powder bed fusion–laser beam additive manufacturing (Keynote talk)
J P Miner and **S P Narra**

Wednesday 9th September

- 09.00 – 09.50 In-situ TEM investigation of thermally induced boundary motion and interaction with particles (Keynote talk)
X Sauvage, *F Cuvilly, O Renk and G Hachet*
- 09.50 – 10.10 Strain-induced lattice rotation and five-parameter grain boundary evolution in nanocrystalline Cu revealed by three-dimensional orientation mapping in the TEM
W Cai, **W Zhu**, *R Fu, X Huang, Z Feng, T Huang, G Wu and X Huang*
- 10.10 – 10.30 Time-resolved 4D characterisation of an abnormal grain growth event in pure iron
H W Anes, *M F Heinig, P Wang, J Oddershede, R R P Purushottham Raj Purohit, F Niessen, F Bachmann, Y Zhang and E Lauridsen*
- 10.30 – 10.50 Tracking particle-mediated abnormal grain growth in the aluminum alloy AA5252 in 3D
H-A Schulz-Harder, *J M Dake, H Fang, W Ludwig and C E Krill III*
- 10.50 – 11.20 Coffee break**
- 11.20 – 11.50 Does shear-coupled grain boundary migration mediate grain growth even close to the melting point? (Invited talk)
J Tang, J M Dake, C E Krill III and O Renk
- 11.50 – 12.10 Grain Growth in Layered Microstructures with Alternating Equiaxed and Columnar Morphologies
D Zöllner and *W Pantleon*
- 12.10 – 12.30 Microstructural evolution during annealing of lightly deformed and heavily deformed copper
D P Field, *M P Buntain, A R Brown and L Zhao*
- 12.30 – 12.50 Evolution of microstructure and mechanical properties during annealing of rolled CoFeMnNi- 5Cr-5Al-1C alloy
K V Werner, F B Grumsen, G Winther and O V Mishin
- 12.50 – 13.45 Lunch**
- 13.45 – 14.35 4D study of the residual stress effects on recrystallization boundary migration (Keynote talk)
Y Zhang
- 14.35 – 14.55 Grain rotation during grain growth: A 3D phase field crystal study
H Hallberg and *K H Blixt*
- 14.55 – 15.15 Annealing twin formation: a consequence of internal stress relaxation?
J Tang, *T V Bommel and O Renk*

15.15 – 15.45 Coffee break

- 15.45 – 16.15 On the low Avrami exponent during recrystallization of a tantalum alloy
(Invited talk)
*Z Zeng, G Wu, H Liu and **F Lin***
- 16.15 – 16.35 Microstructural evolution during annealing of tungsten fiber-reinforced
tungsten composites fabricated by powder metallurgy
***S Rudchenko**, Y Mao and W Pantleon*
- 16.35 – 17.05 Extracting microstructural descriptors from diffraction contrast x-ray
tomography for grain growth modeling (Invited talk)
*V S Venkatesh and **A J Shahani***
- 17.05 – 17.25 A first attempt to learn grain growth from experimental datasets using graph
neural networks
***V S Venkatesh** and A J Shahani*

Thursday 10th September

- 09.00 – 09.50 Quantitative analysis of stress/strain partitioning between soft and hard phases during deformation of multi-phased materials (Keynote talk)
N Tsuji and *M-H Park*
- 09.50 – 10.10 Origin of rolling contact fatigue failure in bearings
X Zhang, **Z Wu**, *P Klit* and *D Juul Jensen*
- 10.10 – 10.30 In situ SEM observation of microstructure evolution during heating in an Fe-24Ni lath martensite
K Tsuzaki and *A Shibata*
- 10.30 – 10.50 Comparative dark field x-ray microscopy of deformation in cold-rolled AA2024-T8 containing second-phase precipitates
V Sanna, *W Ludwig*, *C Moussa*, *A Shukla*, *L Lesage*, *V Esin* and *C Yildirim*
- 10.50 – 11.20 Coffee break**
- 11.20 – 11.50 Effects of different ceramic, metallic and intermetallic interfaces in contact to recycled Al alloys on microstructure evolution during solidification (Invited talk)
H Becker
- 11.50 – 12.10 Microstructural heterogeneity in laminated Ti fabricated by hybrid manufacturing
T Yu and *J Shen*
- 12.10 – 12.30 Multi-Beam 3DXRD
J A D Ball, *J W Andreasen*, *S de Angelis*, *J P Wright* and *C Detlefs*
- 12.30 – 12.50 Pink beam magnified topo-tomography
C Yildirim, *W Ludwig*, *A Shukla* and *L Puertas Peláez*
- 12.50 – 13.45 Lunch**

- 13.45 – 14.35 Contributions of 4D imaging in mechanics of materials (Keynote talk)
F Hild, A Fau, C Jailin, V Kosin, B Smaniotto, M G Tarantino, M Valmalle and
T Wick
- 14.35 – 14.55 Hydrogen embrittlement in laser powder bed fusion GH3536 superalloy
J Cao, Y Xu, M Dong, Y Shen, R Cui, G Fan and **C Zhang**

Social event and dinner in Copenhagen

- 15.15 Departure by bus from Risø Campus
- 16.30 Visit to the National Museum “Arctic exhibition” or Walking tour “Greenland in
Denmark”
- 18.00 Dinner at the Black Diamond
- 21.00 Departure by bus from the Black Diamond to Roskilde

Friday 11th September

- 09.00 – 09.50 Electron microscopy for characterising microstructure across length scales in 6xxx aluminium alloys (Keynote talk)
*T Bergh, C D Marioara and **R Holmestad***
- 09.50 – 10.10 Interaction between S-phase precipitates and dislocation sub-structures in AA2024 (Al-Cu-Mg)
***C Moussa**, D Irmer, M Sennour, C Yildirim, L T Belkacemi, A Vaissière and V A Esin*
- 10.10 – 10.30 Mosaicity and axial strain in tensile deformed aluminium by dark field x-ray microscopy
***A P Gayoso Padula**, N A Henningsson, M La Bella, A A W Cretton, F Frankus, A Shukla, J Haack, S Staeck, G Winther and H F Poulsen*
- 10.30 – 10.50 Strengthening strategies in laser powder bed fusion aluminium alloys: A review
*P He and **X Li***
- 10.50 – 11.20 Coffee break**
- 11.20 – 11.50 Spherical indexing EBSD on plastically deformed metallic microstructures: possibilities and limitations (Invited talk)
*T Nguyen-Minh, F Granda-Arce and **L A I Kestens***
- 11.50 – 12.40 Enhancing context-sensitive large-area microstructural analysis with electron channeling pattern-informed electron channeling contrast imaging (Keynote talk)
***T B Britton**, M H Qaiser, J White, D Wallis, J Dluhoš, V Ondračka, G Xia, Z Wan and R Dubosq*
- 12.40 – 12.50 Closing remarks by D Juul Jensen**
- 12.50 – 13.45 Closing of conference and lunch**

Poster session, Tuesday 8th September

- 1 A Bayesian approach to rocking-curve analysis in dark-field x-ray microscopy
A Benhadjira, C Detlefs, V Favre-Nicolin, L Dresselhaus-Marais,
M P Kabukcuoglu and C Yildirim
- 2 Phase-field modelling of silicon particle coarsening in AISi10Mg: effects of grain boundaries
M Defer, Y Zhang and N Moelans
- 3 Imaging dislocation ensembles during in situ tensile deformation using dark-field x-ray microscopy
F Frankus, A Henningsson, S Staeck, A A W Cretton, A Gayoso Padula,
M La Bella, H Friis Poulsen and G Winther
- 4 Annealing of additively manufactured stainless steel at high temperatures
S F Hückelkamp, X Wang, T Yu and **D Juul Jensen**
- 5 Warm deformation behaviour and microstructural evolution of LPBF 316L stainless steel
X Liu, W Wang, C Zhang, Y Wang, X Huang and A Godfrey
- 6 Phase-retrieval conditions of holographic X-ray computed tomography for identification of Si particles in annealed LPBF AISi10Mg
D Mani, J Villanova, D Juul Jensen and Y Zhang
- 7 Thermal stability of rolled tungsten plates for plasma-facing components
S Rudchenko, C Komninou, J B Rasmussen and **W Pantleon**
- 8 Benchmarking multimodal diffraction imaging techniques for 3D grain morphology
L Puertas Peláez, A Shukla, L Lesage, V Sanna, M Sarkis, W Ludwig and C Yildirim
- 9 From wire to spring – microstructure and texture evolution during coiling of stainless steel compression springs
M Skat Tiedje, D Cardenas del Rio, N L Pedersen and D Juul Jensen
- 10 Microstructural evolution in resistance spot-welded electric conductor-grade Al1370 to GlidCop Al-25 joints
M R L Zwicker, J K Sunde, T Yu, J H Nordlien and C V Nielsen