



# PolyCrystal : International workshop on the mechanics of polycrystalline materials

23-25 May 2022 Paris (France)

<https://polycrystal.sciencesconf.org>

## Monday afternoon 23 May

**Lunch snacks, 12:30-13:50, Espace Maurice Allais**

**Welcome words, 13:50-14:00, Schlumberger theater, V107**

**Advances in 3D/4D experiments, chairman: *Henry Proudhon***

**14:00-14:35** Deformation of polycrystals observed with 3D synchrotron X-ray diffraction imaging techniques – *Wolfgang Ludwig*, MATEIS INSA Lyon, Université de Lyon, European Synchrotron Radiation Facility, Grenoble, France

**14:35-15:10** Revealing the role of microstructure architecture on strength and ductility of Ni microwires by in-situ synchrotron X-Ray diffraction – *Ludovic Thilly*, Institut Pprime, Université de Poitiers, France

**15:10-15:45** New Opportunities for Inclusion of Constitutive Modeling in the Interpretation and Analysis of In-situ X-ray Diffraction Data – *Darren Pagan*, Penn State University, United States of America

**Coffee break, 15:45-16:50, Espace Maurice Allais**

**Advances in 3D/4D experiments, chairman: *Darren Pagan***

**16:50-17:25** In situ 4D mechanical testing of structural materials: the data challenge – *Henry Proudhon*, Centre des Matériaux Mines Paris, PSL University, France

**17:25-18:00** Some Recent Developments in TriBeam Tomography for Acquisition of 3D Multimodal Datasets - *Tresa Pollock*, Materials Department, University of California Santa Barbara, United States of America

**Cocktail dinner in the honor of Georges Cailletaud, 19:00-21:00, Espace Maurice Allais**

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## Tuesday morning 24 May

**Crystal plasticity modeling, chairman: *Jonathan Cormier***

**09:00-09:35** Recent advances in crystal plasticity simulations based on 3D Discrete Dislocation Dynamics – *Marc Fivel*, Science et Ingénierie des Matériaux et Procédés (SIMaP), University of Grenoble Alpes, France

**09:35-10:10** A FFT-based approach for mesoscale continuum field dislocation mechanics and applications to polycrystal plasticity – *Stéphane Berbenni*, LEM3 Université de Lorraine, CNRS, Arts et Metiers ParisTech, France

**10:10-10:45** On the History of Gradient Materials – *Albrecht Bertram*, Otto-von-Guericke University Magdeburg, Technische Universität Berlin, Germany

**Coffee break, 10:45-11:15, Salle des colonnes**

**Crystal plasticity modeling, chairman: *Stéphane Berbenni***

**11:15-11:50** A microstructure sensitive model to account for the non-isothermal creep behavior of Ni-based single crystal superalloys – *Jonathan Cormier*, Institut P' CNRS - Université de Poitiers, France

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**11:50-12:25** Dwell fatigue in titanium alloys: integrated experiment, EBSD and TEM characterisation, and discrete and crystal plasticity modelling – *Fionn Dunne*, Imperial College London, United Kingdom

**12:25-13:00** On the role of crystal plasticity and multi-scale modeling in ICME workflow to design high entropy alloys – *Lindroos Matti*, VTT Research Centre Of Finland

**Lunch Buffet, 13:00-14:30, Salle des colonnes**

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## **Tuesday afternoon 24 May**

**Large Scale simulations, chairman: *Fionn Dunne***

**14:30-15:05** The Neper/FEPX project and its application to polycrystal homogenization – *Romain Quey*, Mines Saint-Étienne, Université de Lyon, France

**15:05-15:40** Full-field polycrystal plasticity as a mean towards architecturation of complex microstructures – *Fabrice Barbe*, Université de Rouen, Institut National des Sciences Appliquées, France

**Coffee break, 15:40-16:20, Espace Vendome**

**Large Scale simulations, chairman: *Marc Fivel***

**16:20-16:55** On the modeling of single slip localization modes in polycrystals – *Aldo Marano*, ONERA Chatillon, France

**16:55-17:30** Microwave Induced Damage in Granite – *Thomas Antretter*, Institute of Mechanics, Leoben, Austria

**Free evening**

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## **Wednesday morning 25 May**

**Machine learning analysis, chairman: *Samuel Forest***

**09:00-09:35** Data-Driven Approaches for High Throughput Experiments and Processing-Property Analyses – *Samantha Daly*, Mechanical Engineering Department, University of California Santa Barbara, United States of America

**09:35-10:10** Manifold learning for model reduction in cristal plasticity – *David Ryckelynck*, Centre des Matériaux Mines Paris, PSL University, France

**Coffee break, 10:10-10:50, salle des colonnes**

**Industrial point of view, chairman: *David Ryckelynck***

**10:50-11:25** Micro-mechanics approaches in the field of materials ageing of nuclear power plants structures – *Adrien Guery*, Materials and Mechanics of Components, EDF R&D, France

**11:25-12:00** Applications of polycrystal simulations at Safran – *Arjen Roos*, SafranTech, Magny les hameaux, France

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