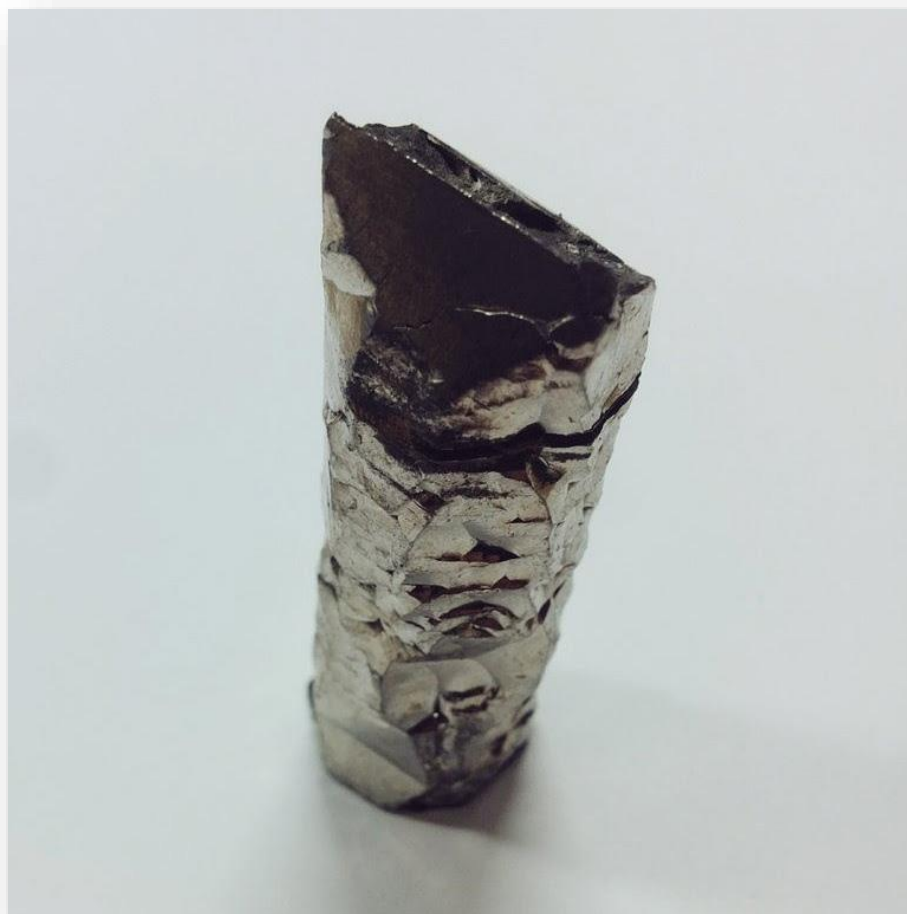


## **2<sup>nd</sup> International Workshop on Mechanistic Behaviour of HCP Alloys**



**Mon 17<sup>th</sup> – Wed 19<sup>th</sup> September 2018**  
**PEMBROKE COLLEGE, UNIVERSITY OF OXFORD, UK**

**Final Programme**

**Organising Committee:**

**Ben Britton, Fionn Dunne and Saira Naeem (Imperial College London)**

## Programme Overview - Monday:

08:30 Registration and Refreshments

09:20 Welcome & workshop outline

### Session 1 – Chair: Fionn Dunne

09:30 David Rugg

*Keynote:* The use of academic research output in Industry

10:10 Yi Xiong, Phani Karamched, Christopher Magazzeni, Chi-Toan Nguyen, David M Collins, Edmund KR Tarleton and Angus J Wilkinson

An In-situ Synchrotron Diffraction Study of Stress Relaxation in Ti Alloys

10:30 Anish Roy, Qiang Liu, Rongxin Zhao, Anuj Bisht, Satyam Suwas

Modelling the temperature and strain rate effects of extruded AM30 magnesium alloy

10:50 Discussion

11:10 Refreshments

### Session 2 – Chair: Irene J. Beyerlein

11:40 Zebang Zheng, David Wilson, Bo Chen, Daniel Balint, Fionn Dunne

*Keynote:* Discrete Dislocations to Crystal Plasticity: New Ideas to Explore Fatigue and Fracture

12:20 Y. Lu\*, M. Aristizabal, X. Wang, B. Pang, Y.L. Chiu, Z. T Kloenne, H.L. Fraser and M.H. Loretto

The influence of heat treatment on the microstructure and properties of HIPped Ti6Al4V

12:40 Abigail K Ackerman, Colin Ophus, Alexander Knowles, Ioannis Bantounas, Mohsen Danaie, David Rugg, David Dye

Improving Strength in Ti-6Al-2Sn-4Zr-6Mo

13:00 Discussion

13:20 **Lunch**

### Session 3 – Chair: Phani Karamched

14:10 Irene J. Beyerlein

*Keynote:* Twin Formation, Propagation, and Intersections at the Mesoscale

14:50 Jing Wu and YuLung Chiu

In-situ TEM study of <c+a> dislocations in Mg-Y alloys

15:10 Gyula Zilahi, Gábor Ribárik, Sean Agnew, Wei Wu, Ulrich Lienert and Tamás Ungár

Characterization of 3D dislocation structure in single grains and parent-twin pairs of uniaxially deformed polycrystalline Mg AZ31 alloy specimens

15:30 Discussion

15:50 Refreshments

### Session 4 – Chair: Abigail Ackerman

16:20 Martin A. Crimp, Yang Su, Songyang Han and Philip Eisenlohr

An Experimental and Computational Study of Shear Accommodation at Grain Boundaries in Alpha Titanium

16:40 Liu Chen, Fionn Dunne and Son Pham

Microstructure-based modelling of plastic anisotropy in lamellar TiAl alloy

17:00 Viacheslav Kuksenko, Steve Roberts and Edmund Tarleton

Nanoindentation hardness anisotropy of beryllium

17:20 James Little and Hector Basoalto

Plasticity as emergent behaviour in 2-phase alloys

17:40 Discussion

18:00 End of Session  
19:30 Dinner

**Programme Overview - Tuesday:**

**Session 5 – Chair: Ben Britton**

09:00 Michael D. Sangid *Keynote: Coupling modeling and in situ experiments to investigate plasticity and fatigue performance of Ti alloys*

09:40 Sudha Joseph, Trevor C Lindley and David Dye *Influence of load hold on dislocation mechanisms in fatigue of a near-alpha titanium alloy*

10:00 Kayleigh Nelson, Euan Wielweski and Darren Pagan *Materials Fundamental Study of the Properties and Deformation of Titanium Alloys at Room Temperature*

10:20 David Wilson and Fionn Dunne *Modelling microstructurally-sensitive fatigue crack growth*

10:40 Discussion

11:00 Refreshments

**Session 6 – Chair: Sudha Joseph**

11:30 Siyang Wang, Finn Giuliani and Ben Britton *Micropillar compression of hydride containing zircaloy-4 to explore the performance of nuclear fuel cladding*

11:50 Benjamin Christiaen, Ludovic Thuinet, Christophe Domain, Antoine Ambard and Alexandre Legris *Object kinetic Monte Carlo modelling of microstructure evolution under irradiation in zirconium based on atomistic modelling of point defect clusters*

12:10 S. Wang, R. Birch, V. Tong, A.J. Breen, I. Mouton, W. Lu, A. Szczepaniak, P. Kontis, L.T. Stephenson, Y. Chang, A.K. da Silva, C.H. Liebscher, D. Raabe, M. Herbig, B. Gault, F. Giuliani, T.B. Britton *Hydrides and deuterides in zircaloy-4*

12:30 Michael Preuss *Quantification of strain localisation and slip mode activity in hcp metals by orientation mapping and high resolution digital image correlation – progress and challenges*

12:50 Discussion

13:10 Lunch

**Session 7 – Chair: Rhys Thomas**

14:10 Armand Beaudoin, Kamalika Chatterjee, Darren Pagan and Paul Shade *Keynote: Insight into the Kinetics of Plasticity Using High-Energy X-Ray Diffraction*

14:50 Christos Triantafyllou, Darren Pagan and Andrew McBride *Experimental and numerical investigation of cold-dwell fatigue in UD-rolled Ti64*

15:10 Jicheng Gong and Angus Wilkinson *Micro-cantilever Tests of Asymmetry in Tensile and Compressive Slip Properties and Basal Plane Cracking in Alpha Titanium*

15:30 Haiyang Yu, Angus Wilkinson and Edmund Tarleton. *Three dimensional discrete dislocation plasticity modeling of microcantilever tests on HCP materials*

15:50	Discussion	
16:10	Refreshments	
<b>Session 8 – Chair: Vivian Tong</b>		
16:40	<u>Michael Lowe</u> , Ming Huang, Stan Rokhlin and Gaofeng Sha	Grain scale simulation of wave propagation in polycrystalline materials
17:00	<u>Kamalika Chatterjee</u> , Robert Carson and Paul Dawson	Best practices in determination of microstructure-property correlations in alpha-Titanium using crystal plasticity
17:20	<u>Bo Lan</u> , T.Ben Britton, Weimin Gan, Michael Hofmann, Michael A. Carpenter, Christopher M. Kube, Fionn P.E. Dunne and Michael J.S. Lowe	Volumetric measurement of crystallographic texture using acoustic waves
17:40	Hamidreza Abdolvand, Jonathan P Wright and <u>Angus J Wilkinson</u>	Strong Neighbour Effects on Grain Resolved Stress Distributions in Hexagonal Metals
18:00	Discussion	
18:30	Drinks Reception	
19:30	Banquet Dinner	

#### Programme Overview - Wednesday:

##### Session 9 – Chair: Fionn Dunne

09:00	<u>Maryam Ghazisaeidi</u>	<i>Keynote:</i> Effect of Solute on Twin Nucleation and Growth in Ti and Mg alloys
09:40	H. M. Gardner, A. Radecka, D. Rugg, <u>D. E. J. Armstrong</u> , M. P. Moody and P. A. J. Bagot	Investigating the Effects of Oxygen and Nitrogen on Titanium alloys for Turbine Engine applications
10:00	<u>Zhenbo Zhang</u> , Philip Platt, David Lunt and Michael Preuss	Effect of hydrogen on the plasticity of Ti64 and Ti575 alloys
10:20	<u>Hattie Xu</u> , Tamas Ungar, Philipp Frankel and Michael Preuss	Characterizing dislocation loops in proton irradiated pure zirconium
10:40	Discussion	
11:00	Refreshments	

##### Session 10 – Chair: Hector Basoalto

11:30	<u>Arutyun Arutyunyan</u> , Jicheng Gong and Angus Wilkinson	Ultrasonic Fatigue testing of Ti: nucleation and short crack growth
11:50	<u>Christopher Magazzeni</u> , Jicheng Gong and Angus Wilkinson	Microstructure and Local Property Assessment near Linear Friction Welds
12:10	<u>L. Farbaniec</u> , J.R.W. Patten, T. White and D.E. Eakins	Dynamic behaviour of Ti-6Al-4V alloy under high strain rate loading
12:30	Discussion	
12:50	Lunch	
14:00	End of Conference	