



Designing Alloys for Resource Efficiency

A Manufacturing Approach 4

Halifax Hall, The University of Sheffield

11 & 12 February 2020

Programme

Tuesday 11th February

10.00 - 10.30 **Registration and coffee**

10.30 – 11.00 **Welcome & overview**

Professor Mark Rainforth

Professor of Materials Engineering, Department of Materials Science and Engineering,
The University of Sheffield.

11.00 – 12.30 **Presentations**

Dr Dikai Guan, Department of Materials Science and Engineering, University of
Sheffield, UK

Recrystallisation and Texture Evolution in Mg alloys

Dr Lefteri Andritsos, Department of Physics, King's College London

Designing resource efficient magnesium alloys, an atomistic approach

Chaitanya Paramatmuni, Department of Materials, Imperial College, UK

Micromechanics of twin nucleation and growth in Mg alloys

12.30– 13.30 **LUNCH and Posters**

13.30 – 15.00 Presentations

Prof Wei Xu, Northeastern University, China

Physical metallurgy guided machine learning and artificial intelligent design of advanced high strength steels

Prof Hanwei Fu, School of Materials Science and Engineering, Beihang University, China

Strain-induced microstructure decay in bearing steels

Mr Thomas Kwok, Imperial University, London

How low can you go – The TWIP steel manganese limbo

15.00 – 15.30 Tea and coffee

15.30 – 17.00 Presentations

Dr Peng Gong, Department of Materials Science and Engineering, The University of Sheffield

Effect of aging on the microstructural evolution in a new design of maraging steels with carbon

Greg Clarke, Strategy & Business Development, Liberty Steel

Residuals management using the value in use model as a basis and a perspective on scrap management opportunities

Dr Lucy Smith, Advance Resource Efficiency Centre (AREC), The University of Sheffield

Sustainability Assessment for Resource Efficient Alloys

18.00 Poster session and drinks

19.00 Dinner

Wednesday 12th February

9.00 – 10.30 Presentations

Dr Nick Weston, Department of Materials Science and Engineering, Sheffield University, UK

Exploiting field assisted sintering technology for resource efficient, next generation components.

Dr Xin Xu, Department of Materials, Imperial College, UK

A high yield strength TWIP+TRIP Ti alloy

Dr Junheng Gao, Department of Materials Science and Engineering, Sheffield University, UK

A new grain refinement strategy to achieve both high strength and large ductility in a TWIP steel

10.30 – 11.00 Tea and coffee

11.00 – 12.30 Presentations

Prof Raymundo Arroyave, Department of Materials Science and Engineering, Texas A&M University, USA

Efficient Exploration of the High Entropy Alloy Space

Prof Russell Goodall, Department of Materials Science and Engineering, University of Sheffield, UK

High entropy alloys for brazing

Prof Pedro Rivera, LPW/RAEng Research Chair, Lancaster University

New martensite theory to design TRIP/TWIP Ti alloys

12.30 LUNCH and close