

UK Magnetics Society

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One Day Seminar

Critical Rare Earth Materials

21st February 2014

at

Bramall Auditorium, University of Birmingham

Rare earth elements play a vital role in many industrial sectors including energy generation, aerospace, automotive, electronics and catalysts to name but a few. In recent years the supply of rare earth materials has come under increasing pressure which has resulted in dramatic price fluctuations for these materials. The rare earth elements are now top of the critical materials lists in the EU, US and Japan. In particular neodymium and dysprosium, which are used in neodymium iron boron NdFeB permanent magnets, have been highlighted. There are several ways in which the current shortfall could be alleviated including: opening / re-opening rare earth mines in countries outside of China, using alternative devices which do not contain rare earth magnets, re-designing the applications to use the rare earths more efficiently, develop new magnetic materials with less or no rare earth elements or recycle the existing stock of rare earth magnetic materials contained within redundant equipment.

This meeting will bring together leading academic and industrial experts on rare earth materials in the UK. It will provide an overview of the field and present possible solutions to the rare earth shortages from mine to market and then “end of life” recycling. The meeting will be attended by representatives of the UK funding councils.

The following topics will be considered -

- Future supplies of rare earth materials and the likely impact of those supplies on the world market.
- The “balance problem” of rare earth elements and methods for extraction from mined ores.
- Materials – Current uses and future developments on the efficient use and substitution of rare earths.
- Applications containing rare earth materials – design considerations for more efficient use or possible substitution of rare earths.
- The challenges for recycling: Collection, identification, extraction and re-processing.
- EU Horizon 2020 – Calls relevant to critical and rare earth materials.

Programme

Chair - **Dr Allan Walton**, *University of Birmingham*

0900 Registration & Coffee

1000 **Welcome**

Prof Rex Harris, University of Birmingham

1020 **Natural Rare Earth Resources**

Prof Frances Wall, Camborne School of Mines and British Geological Survey

1040 **The Balance Problem, the Rare Earth Market and Separation Technology**

Mr David Kennedy, Independent

1100 **Coffee**

1130 **Uses of Rare Earth Activated Phosphors in Modern Technology**

Prof Jack Silver, Wolfson Centre for Materials Processing, Brunel University

1150 **Introduction to Permanent Magnets and the UK Supply Chain**

Mr Roger Allcock, Arnold Magnetic Technologies Ltd

1210 **Processing and Challenges for Permanent Magnetic Materials**

Dr Allan Walton, University of Birmingham

1230 **Lunch**

1400 **Physics of Rare Earths on the Nanoscale**

Prof Julie Staunton, University of Warwick

1420 **Permanent Magnets in the Automotive Sector**

Dr John Reeve

1440 **Rare Earth Free Electric Motors**

Dr James Widmer, Newcastle University

1500 **Coffee**

1530 **Permanent Magnet Wind Turbine Generators**

Mrs Adriana Cristina Urda, Siemens Wind Power

1550 **The Electronic Scrap Market**

Mr Jon Godfrey, Intelligent Life Cycle Solutions

1610 **Recycling of Rare Earth Magnets from Electronic Scrap**

Dr Richard Sheridan, University of Birmingham

1630 **Recycling of Critical Materials from the Automotive Sector**

Prof Neil Rowson, University of Birmingham

1650 **Europe – Critical Raw Materials Strategy and Opportunities in Horizon 2020**

Dr Catherine Joce, Project manager – Critical Raw Materials Innovation Network.

1710 **Closing remarks**

To register please complete the form below or contact astewart@ukmagsoc.org

PLEASE COMPLETE AND RETURN TO:

Alastair Stewart, UK Magnetics Society, 57 The Philog, Cardiff, CF14 1DZ

Tel: 02920 626643 Fax: 02920 626643 please call before transmission Email: astewart@ukmagsoc.org

I wish to attend the UK Magnetics Society one-day seminar

Critical Rare Earth Materials

21st February 2014, Birmingham University

Delegate 1: Title Dr / Mr / Mrs etc First Name Surname.....

Email..... LinkedIn Name..... Twitter Username.....

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Delegate 3: Title Dr / Mr / Mrs etc First Name Surname.....

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Postcode / ZipCode..... Telephone..... Fax.....

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Please Note

1. Refunds cannot be made for cancellations after 72 hours prior to the seminar
2. Payment for fees are due within 30 days of invoicing

I enclose remittance to cover technical sessions, seminar documentation, refreshments and lunch.

By cheque: payable to the UK Magnetics Society and drawn on a UK bank.

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