

NERC

SCIENCE OF THE ENVIRONMENT

EPSRC

Pioneering research and skills

SoS MinEerals

202 1A11UE1912

Knowledge Transfer Network

Environmental Sustainability



Security of Supply of Mineral Resources

Invitation to advise and participate in a UK Government Funded R&D Programme

The UK Government, through the Natural Environment Research Council, is funding a £7 million programme to develop science that can enhance the sustainability of the exploration and exploitation of chemical elements that are important in 'green technologies' such as solar cells, high-performance permanent magnets and electricity storage. The focus for the research is on Co, In, Ga, Se, Te, Nd and heavy rare earths.

We are looking for mining businesses to participate in the programme by supporting the development of the research proposals and providing guidance to researchers. This will ensure that the research can deliver outputs that are relevant to the mining community. You are not required to make direct financial contributions to the research projects but where appropriate these could enhance the scope and demonstrate a high level of commitment.

The two science goals are:

- to develop a better understanding of E-tech element cycling and concentration in natural systems
- to predict and mitigate the environmental effects of extraction and recovery of E-tech elements

The programme is being conducted in two phases. Thirteen projects from Phase 1 have been selected for preliminary catalyst 'seed' funding to support the development of full research proposals. These proposals must be delivered in June 2014 to be eligible for up to £3 million of grant funding.

All projects need to demonstrate that they have the support of organisations that are active in the mining sector so that the scientific outputs that can be deployed by commercial organisations. Given the nature of the mining industry it is understood that proposals may engage with international partners.

The Research Grants will be awarded in November 2014 and will run for 3–4 years.

Titles of the catalyst grants are overleaf and a summary of the projects under development can be obtained from the programme website:

<http://tinyurl.com/sosminerals>

For further details please contact:

Contact:

Tony Hartwell tony.hartwell@ktn-uk.org

Jon Naden j.naden@bgs.ac.uk



NERC Security of Supply of Minerals Programme: Catalyst Awards

HOSANA! Hole systems analysis: an integrated view of E-tech element security and impacts, from deposits to products and beyond. *University of Cambridge:* Dr Julian Allwood, Dr David Ayala; *Imperial College:* Prof Jan Cilliers; *Camborne School of Mines:* Dr Kathryn Moore; *British Geological Survey:* Mr Andrew Bloodworth

Processes governing semi-metal – PGE linkage in crustal magmatic systems: opportunities for discovery and recovery. *University of Leicester:* Dr Daniel Smith, Dr David Holwell, Dr Gawen Jenkin, Prof Andrew Abbott; *University of Durham:* Dr Colin Macpherson; *Loughborough University:* Dr Caroline Kirk

Selenium and tellurium concentration by organic materials. *University of Aberdeen:* Professor John Parnell, Prof Jorg Feldmann; *British Geological Survey:* Mr Paul Lusty; *University of Dundee:* Prof Geoffrey Gadd; *Natural History Museum:* Dr Christopher Stanley

Biogeochemistry, bioextraction and biorecovery of rare earth elements. *Plymouth University:* Dr Rich Boden; *University of Manchester:* Professor Richard Patrick; *University of Birmingham:* Professor Lynne Macaskie, Dr Stephanie Handley-Sidhu, Dr Angela Murray; *British Geological Survey:* Dr Joanna Wragg

Indium from source to sink: mechanisms of fractionation within the crust and surface environment. *Camborne School of Mines:* Dr Jens Andersen, Prof Bernd Lottermoser; *Natural History Museum:* Prof Reimar Seltmann; *British Geological Survey:* Dr Barbara Palumbo-Roe; *University of Bristol:* Prof Jonathan Blundy, Prof David M Sherman; *Imperial College:* Dr Jamie Wilkinson

Understanding genesis of HREE deposits through experimental and spectroscopic measurements and atomistic simulations (REEXSS). *University of Edinburgh:* Dr Bryne Ngwenya, Prof Simon Harley, Dr Linda Kirstein, Dr Ian Butler, Dr Geoffrey Bromiley, Dr Katharine Saunders; *National Museums Scotland:* Dr Rachel Walcott; *University of Bristol:* Dr Andrew Walker; *Diamond Light:* Prof J Frederick Mosselmans

Mineral – microbe interaction role in concentration and fractionation of rare earth elements (MM-FREE). *British Geological Survey:* Dr Barbara Palumbo-Roe, Prof Julia West, Dr Antoni Milodowski, Dr Joanna Wragg, Dr Simon Gregory, Dr Lorraine Field; *University of Sheffield:* Prof Steve Banwart, Prof John Harding, Dr Wei Huang, Dr Colin Freeman, Dr Maria Romero-Gonzalez

The E-tech element potential of submarine ferromanganese crusts. *National Oceanography Centre:* Dr Bramley Murton, Dr Rosemary Edwards; *British Geological Survey:* Mr Paul Lusty, Mr Alan Edwards

Natural enrichments in E-tech Elements (Co, Ga, In, Te, Li, REE) [NEETE]. *University of Southampton:* Prof Stephen Roberts; *Natural History Museum:* Prof Richard Herrington, Dr Robin Armstrong; *University of Leeds:* Prof Bruce Yardley, Dr Stephen Stackhouse, Dr David Banks; *Imperial College:* Dr Jamie Wilkinson; *Loughborough University:* Dr Caroline Kirk

Geology to metallurgy of critical rare earths: sustainable development of Nd and HREE deposits. *Camborne School of Mines:* Prof Frances Wall; *British Geological Survey:* Dr Kathryn Goodenough; *University of St Andrews:* Dr Adrian Finch; *Brighton University:* Dr Martin Smith; *University of Leeds:* Prof Bruce Yardley, Dr Stephen Stackhouse, Prof Animesh Jha, Dr David Banks

LAYERS of material flows for E-tech elements. *Newcastle University:* Prof David Manning, Prof Richard Dawson, Dr Oliver Heidrich; *Camborne School of Mines:* Prof Hylke Glass

Cobalt: the roles of geology, geomicrobiology and geometallurgy in its mineral formation and recovery (CoG3). *Bangor University:* Prof David (Barrie) Johnson; *Natural History Museum:* Prof Richard Herrington; *University of Dundee:* Prof Geoffrey M Gadd; *University of Southampton:* Prof Stephen Roberts; *University of Manchester:* Prof Jonathan Llyod, Prof Richard Patrick. Dr Victoria Coker; *Camborne School of Mines:* Prof Hylke Glass

Rare earth element (REE) behaviour in alkaline mineral systems: harnessing nature's geochemical patterns. *University of Manchester:* Dr David Polya, Dr Linda Campbell