



## DEMETER Concluding Symposium

Rare-earth permanent-magnet  
motors and the e-mobility  
revolution

5-7 February 2019, Leuven, Belgium

### Tuesday 5 Feb 2019

12:00	<b>Welcome reception and registration</b>
14:00	<b>Welcome Opening by the host</b>
<b>Session</b>	<b>The future of REE permanent magnets (I) – Chairperson: Tina Zuzek (Jožef Stefan Institute)</b>
14:10	<b>Keynote Presentation</b> <b>Boris Saje</b> (Kolektor, Slovenia) Metallic Permanent Magnets over the last 35 years
14:50	<b>Keynote Presentation</b> <b>David Brown</b> (SG Technologies Ltd, UK) Nanocrystalline rare earth based magnetic materials and their applications
15:30	<b>Coffee Break</b>
16:00	<b>Keynote Presentation</b> <b>Oliver Gutfleisch</b> (TU Darmstadt, Germany) Heavy rare earth free, free rare earth and rare earth free magnets – vision and reality
16:40	<b>End of Tuesday sessions</b>

<b>Wednesday 6 Feb 2019</b>	
<b>Session</b>	<b>The future of REE permanent magnets (II) – Chairperson: Tina Zuzek (Jožef Stefan Institute)</b>
<b>09:00</b>	<b>Keynote Presentation</b> <b>Mike Coey</b> (Trinity College Dublin, Ireland) What about Nitrides?
<b>09:40</b>	<b>Keynote Presentation</b> <b>Sophie Rivoirard</b> (CNRS, France) High field experimentation
<b>10:20</b>	<b>Coffee Break – Poster Session</b>
<b>10:50</b>	<b>Keynote Presentation</b> <b>Dagmar Goll</b> (Hochschule Aalen, Germany) New permanent magnet phases
<b>11:30</b>	<b>Intensified Poster Presentation Session</b>
<b>12:00</b>	<b>Lunch</b>
<b>Session</b>	<b>The future of (H)EVs – Chairperson: Peter Rasmussen (Aalborg University)</b>
<b>13:30</b>	<b>Keynote Presentation</b> <b>Steve Hope &amp; Ronny Denis</b> (Toyota Motor Europe, Belgium) Recycling opportunities & challenges: Toyota's long-term vision on electrified vehicles
<b>14:15</b>	<b>Keynote Presentation</b> <b>Bert Witkamp</b> (VALUAD, The Netherlands) Future EV supply chains: demand growth and impact on critical raw materials
<b>15:00</b>	<b>Coffee Break</b>
<b>15:30</b>	<b>Keynote Presentation</b> <b>Jose Ramon Garcia Santamaria</b> (Automotive consultant NuMobility, Switzerland) Mobility Responsibilities: Policy Makers, Auto Industry & Rare Earths
<b>16:15</b>	<b>Keynote Presentation</b> <b>Fabrice Stassin</b> (Umicore, Belgium) Advanced cathode materials at Umicore
<b>17:00</b>	<b>Panel Debate : REEs and the future of (H)EVs</b> Irena Skulj (Kolektor), Jose Ramon Garcia Santamaria (Automotive consultant NuMobility), Bert Witkamp (VALUAD), Philippa Oldham (Advanced Propulsion Centre)
<b>18:00</b>	<b>End of Wednesday sessions</b>
<b>19:30</b>	<b>Symposium dinner in Leuven city centre</b>

<b>Thursday 7 Feb 2019</b>	
<b>Session</b>	<b>Recycling of REE permanent magnets – Chairperson: Sofia Riaño (KU Leuven)</b>
<b>09:00</b>	<b>Keynote Presentation</b> <b>Allan Walton</b> (University of Birmingham, UK) Direct recycling routes for EoL magnets
<b>09:45</b>	<b>Keynote Presentation</b> <b>Koen Binnemans</b> (KU Leuven, Belgium) Is REE recycling the solution for the balance problem?
<b>10:30</b>	<b>Coffee Break</b>
<b>11:00</b>	<b>Martina Orefice</b> (KU Leuven, Belgium) – ESR ETN DEMETER Recovery of metal values from SmCo and NdFeB magnets by iono-metallurgical methods
<b>11:15</b>	<b>Fernando Coelho</b> (University of Birmingham) – ESR ETN DEMETER Characterisation of Automotive Scrap Residue (ASR) feeds to improve recycling efficiency
<b>11:30</b>	<b>Gwendolyn Bailey</b> (KU Leuven, Belgium) – ESR ETN DEMETER Life Cycle Assessment of new recycling and re-use routes for REE-magnet machines in (H)EVs
<b>11:45</b>	<b>Intensified Poster Presentation Session</b>
<b>12:15</b>	<b>Lunch</b>
<b>Session</b>	<b>Are REEs still critical? – Chairperson: Jose Ramon Garcia Santamaria (NuMobility)</b>
<b>13:30</b>	<b>Keynote Presentation</b> <b>Gareth Hatch</b> (Strategic Materials Advisors Ltd., UK) REE market developments
<b>14:10</b>	<b>Keynote Presentation</b> <b>Milan Grohol</b> (EC, DG GROW, Belgium) (pending final confirmation) Rare Earths in the EU criticality assessment
<b>14:50</b>	<b>Keynote Presentation</b> <b>Dan Packey</b> (Curtain University, Australia) Rare Earths Supply Today: Lacking Diversity for Long Term Sustainability
<b>15:30</b>	<b>Coffee Break</b>
<b>16:00</b>	<b>Panel Debate: Are REEs still critical?</b> Gareth Hatch (Strategic Materials Advisors Ltd., UK), Dan Packey (Curtin University, Australia), Milan Grohol (EC, DG GROW, Belgium), Gwendolyn Bailey (KU Leuven, Belgium)
<b>17:00</b>	<b>Closing session</b>

## Poster sessions

### Intensified Poster presentation Session on Wednesday 6th February

**Adolfo Garcia** (AAU, Denmark)

Recyclable electrical machine designs with 3D flux and non-traditional materials

**Pranshu Upadhayay** (Valeo, France)

Electrical Machine Designs based on 3D flux paths with reuse and recycle magnet concepts for automotive applications

**Amit Kumar Jha** (INP Grenoble, France)

Design of Halbach permanent magnet external rotor machine with reuse & recycle magnet concepts for automotive applications

**Ziwei Li** (Valeo, France)

Design of radial flux permanent magnet electrical machine with reusability of REE permanent magnets for automotive applications

**Marc Schmid** (Martin-Luther-Universität Halle-Wittenberg, Germany)

Mitigating supply risks of rare earths for NdFeB magnets: Strategies of affected companies

**Lukasz Mierczak** (Brockhaus Messtechnik GmbH & Co. KG, UK)

A novel system for characterisation of AC properties of permanent magnets

**Sofia Riano** (KU Leuven, Belgium)

Recycling of NdFeB magnets: recovery of Neodymium and Dysprosium using ionic liquids

### Intensified Poster presentation Session on Thursday 7th February

**Dzenita Avdibegovic** (KU Leuven, Belgium)

Recovery of rare earths from bauxite residue leachates by functionalised sorbents

**Basit Ali** (KU Leuven, Belgium)

Single step synthesis of Sm<sub>2</sub>Co<sub>17</sub> alloys by electro-deoxidation of mixed Sm<sub>2</sub>O<sub>3</sub>/Co<sub>3</sub>O<sub>4</sub> oxides in molten LiCl-KCl eutectic

**Bieke Onghena**

Near-zero-waste recycling of low-grade sulphidic mining waste for critical-metal, mineral and construction raw-material production in a circular economy

**Zheng Li** (KU Leuven)

Efficient separation of transition metals from rare earths by non-aqueous solvent extraction for recovery of valuable metals from waste magnets

**Nagaphani Kumar Batchu** (KU Leuven, Belgium)

Sustainable process for the separation of dysprosium and neodymium: a solvometallurgical approach

**Xiaohua Li** (KU Leuven)

Metal recovery from Spent Samarium–Cobalt magnets using a trichloride ionic liquid

**Mehmet Ali Recai Onal** (KU Leuven, Belgium)

Mechanochemical impact on the recovery of valuable metals from NdFeB magnets by ferric sulfate leaching