

# Symposium Green Magnets for Efficient Energy Conversion (SYGM)

jointly organised by  
the Magnetism Division (MA) and  
the Metal and Material Physics Division (MM)

Oliver Gutfleisch  
Technical University of Darmstadt  
Materials Science  
Alarich-Weiss-Str. 16  
64287 Darmstadt  
oliver.gutfleisch@tu-darmstadt.de

Michael Farle  
University Duisburg-Essen  
Faculty of Physics  
Lotharstr. 1  
47057 Duisburg  
michael.farle@uni-due.de

Ever increasing demands for efficient, low cost energy conversion require the development of new materials, which can be used in e-mobility, power generation, robotics and refrigeration. The class of magnetic materials covers all of these technologies; in fact hard and soft magnets as well as caloric materials are often overlooked key enablers of a net-zero CO<sub>2</sub> emission scenario. In e-mobility, every battery needs a magnet, i.e. either the mass of the battery is reduced or the range is extended when highly efficient hard and soft magnets are employed in motor and generator. The complexity of magnetostructural phase transitions offers ample opportunities to design (magneto-)caloric and elastic properties for efficient, climate friendly future cooling technologies, smart actuators and soft magnetic robotics.

## Overview of Invited Talks and Sessions

(Lecture hall HSZ 01)

### Invited Talks

SYGM 1.1	Mon	15:00–15:30	HSZ 01	<b>Data mining protocols for functional magnetic materials</b> — ●OLLE ERIKSSON
SYGM 1.2	Mon	15:30–16:00	HSZ 01	<b>High performance permanent magnets; elements criticality, new demands, and extrinsic magnetic properties</b> — ●HOSSEIN SEPEHRI-AMIN, XIN TANG, TADAKATSU OHKUBO, KAZUHIRO HONO
SYGM 1.3	Mon	16:00–16:30	HSZ 01	<b>Magnetic shape memory Heuslers: microstructure-related effects on the martensitic transformation</b> — ●FRANCA ALBERTINI
SYGM 1.4	Mon	16:45–17:15	HSZ 01	<b>Thin film combinatorial studies of hard magnetic materials</b> — ●NORA DEMPSEY
SYGM 1.5	Mon	17:15–17:45	HSZ 01	<b>Magnetocaloric materials for energy-efficient thermal control systems</b> — ●VICTORINO FRANCO, AUN N. KHAN, JORGE REVUELTA-LOSADA, ÁLVARO DÍAZ-GARCÍA, LUIS M. MORENO-RAMÍREZ, JIA YAN LAW

### Sessions

SYGM 1.1–1.5	Mon	15:00–17:45	HSZ 01	<b>Green Magnets for Efficient Energy Conversion</b>
--------------	-----	-------------	--------	--