

## MA 25: Focus Session: Startups in Magnetism

This session offers academic researchers an insight into a possible third career path, besides staying in science or going to industry. Building your own company can be very rewarding and fun, big decisions to make decide over success or failure. 5 young entrepreneurs describe their business cases developed out of our magnetism community and will explain challenges, pitfalls, university support and constraints, IP, legal and business issues. After the talks there is a Panel Discussion with all speakers and Q and A with the audience.

Organizers: Manfred Fiebig (ETH Zürich) and Oliver Gutfleisch (TU Darmstadt).

Time: Wednesday 9:30–12:30

Location: HSZ 04

**Invited Talk** MA 25.1 Wed 9:30 HSZ 04  
**MAGNOTHERM – One way to start a deep tech spin-off from research** — ●MAX FRIES — MagnoTherm Solutions GmbH, Pfungstädter Straße 102, 64297 Darmstadt

Founded as a spin-off from Prof. Oliver Gutfleisch's Functional Materials group at Technische Universität Darmstadt in 2019, MAGNOTHERM holds world-leading expertise in permanent magnets and magnetic cooling.

Our technology, based on solid state materials and water, is capable of revolutionizing the way we provide temperatures: By updating the standard gas compression cycle by our magnetic refrigeration cycle, we can build the next-generation cooling or heating solutions.

What does it mean for scientists to become entrepreneurs? What does it need to transform innovative research into market-ready, valuable products? From initial idea, raising first (venture) capital and sales over to recruiting talents and building a diverse team, I will take you along my professional journey so far. Doing so, I will highlight my personal key learnings along the way, while still providing time for a vivid discussion.

My aim is to motivate and inspire potential founders as well as up and coming Startup-entrepreneurs with a scientific background to implement their ideas by themselves, developing a beneficial impact on the world of today and the future.

**Invited Talk** MA 25.2 Wed 10:00 HSZ 04  
**Spin-Ion Technologies : taking the research from a lab to a start-up company** — ●DAFINÉ RAVELOSONA — Spin-Ion Technologies, 10 Bd Thomas Gobert, 91120 Palaiseau, FRANCE

At Spin-Ion technologies, we have developed a new manufacturing process based on He ion irradiation to tailor the structural properties of ultra-thin magnetic films and spintronic devices at atomic level and improve their performance. The key feature of the technology is the post-growth control at the atomic scale of structural properties, which enables a precise control of magnetic properties. When realized through a mask this technology enables lateral modulation of magnetic properties without any physical etching. In this talk, I will describe the development of our idea from a research lab to a start-up company and how we envision our development toward the commercialization of our solution.

**Invited Talk** MA 25.3 Wed 10:30 HSZ 04  
**MagREESource : the green Rare Earth Magnet company** — ●SOPHIE RIVOIRARD<sup>1,2</sup> and ERICK PETIT<sup>2</sup> — <sup>1</sup>CNRS-UGA/Institut Neel, Grenoble, France — <sup>2</sup>MagREESource SAS, Grenoble, France

Nd-Fe-B is the most widely used hard magnetic material in applications including the electronic and automotive sectors, electromobility and wind powder (e.g. motors, turbines, magnetic valves, sensors). Current standard Nd-Fe-B magnets contain up to 30% of rare earth elements, such as Neodymium or Dysprosium, which are on the EU list of critical elements and which are, for more than 95%, mined in the People's Republic of China. This sourcing raises both environmental and geopolitical issues while the present demand for rare earth magnets is increasing by a rate of nearly 9%/year due to an increasing pro-

duction of green technologies items (electric vehicles, wind turbines\*). Therefore, one incentive in the European Union is to develop recycling processes for Nd-Fe-B magnets. MagREESource is a spin off company from CNRS founded in 2020, which benefits from more than 25 years of expertise within CNRS laboratories in Grenoble. MagREESource has licensed the know-how and Intellectual Property developed in Neel Institute at CNRS Grenoble on the recycling of Rare Earth plant in the Rhone-Alpes region to start high scale production. As a player in the Circular Economy, MagREESource's objective is therefore to promote magnets at the end of their life, by producing new magnets for European manufacturers of motors promoting a loop as short as possible between supply and customer.

**Invited Talk** MA 25.4 Wed 11:00 HSZ 04  
**THATec Innovation – we automate your lab** — ●THOMAS SEBASTIAN — THATec Innovation GmbH, Ludwigshafen, Deutschland

The idea behind THATec Innovation was born in the lab with the major goal to develop hardware and software solutions to overcome the challenges many scientists face in their daily work. Based on our long-standing experience as experimentalists, our services encompass the following areas: the automation of laboratory devices, optical scanning microscopy, and Brillouin light scattering.

THATec Innovation GmbH was founded in 2016 as a spin-off of the Helmholtz Center Dresden-Rossendorf and supported by the Helmholtz association in the framework of the Helmholtz Enterprise program. Since then, THATec Innovation offers the software framework thaTEC:OS for laboratory automation as well as software and hardware for Brillouin light scattering spectroscopy and microscopy.

In this talk, I am going present the experiences I gathered from the foundation of THATec Innovation as well as from my day-to-day business.

**Invited Talk** MA 25.5 Wed 11:30 HSZ 04  
**Kiutra: Magnetic refrigeration for science and technology** — ●ALEXANDER REGNAT<sup>1</sup>, JAN SPALLEK<sup>1</sup>, TOMEK SCHULZ<sup>1</sup>, and CHRISTIAN PFLEIDERER<sup>1,2</sup> — <sup>1</sup>kiutra GmbH, D-81369 Munich, Germany — <sup>2</sup>Physik-Department, Technische Universität München, D-85748 Garching, Germany

Kiutra was founded in 2018 as a spin-off of the Technical University of Munich. With an interdisciplinary team of more than 30 employees, we innovate cryogenics to provide the best, most scalable and sustainable cooling solutions for basic research, material science and applied quantum technologies. Our products and services are successfully used by academic and industrial customers in Germany, Europe and the USA. Here we report on the scientific roots of our company, as well as the main challenges and successes we experienced developing our business. In addition, we highlight the various financing tools that have helped kiutra grow as a deep-tech hardware manufacturer.

**30 min. Panel discussion with all speakers/industry representatives; then Q and A with the audience**