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## Post-doc and PhD positions available in Magnetic Materials

Outstanding candidates are sought for a unique project in the framework of the **ERC Advanced Grant "Cool Innov"** of Prof. Oliver Gutfleisch. We are looking for highly motivated scientists with an excellent track record in physics, chemistry, materials science or a related area in order to complete our team at TU Darmstadt starting latest October 1<sup>st</sup> 2017.

Our team will push for a breakthrough in magnetic solid state refrigeration leading to more efficient refrigeration, with a commercially viable technology that could satisfy the urgent global need. Within the *Cool Innov* project it will be attempted to achieve this step change by rethinking the whole concept of caloric cooling. The conventional idea of squeezing the best out of magneto-structural phase-change materials in relatively low magnetic fields will be reconsidered by introducing a second stimulus in the form of pressure and by taking a hysteresis-positive approach.

For more information see: <https://erc.europa.eu/news/erc-2016-advanced-grants-highlighted-projects>

### 2 post-doc and 4 PhD positions are available (durations 5 years and 3.5 years respectively)

**Post-docs 1 and 2** will lead the experimental activities on the design and realization of unique experimental setups in order to characterize the thermomagnetic and magnetomechanic properties of Heusler and related alloys and finite element simulation of these processes as well as the additive manufacturing of magnetic materials.

**PhD student 1** will focus on the high throughput optimization of novel magnetic phases using density functional theory under the supervision of Prof. Hongbin Zhang working closely with the group of Prof. Gutfleisch.

**PhD student 2** will work on the synthesis and characterization of novel compounds with tailored thermal hysteresis and structural properties for magnetic refrigeration purposes.

**PhD student 3** will design and fabricate magnetic heat exchanger structures using FEM simulation and selective laser melting.

**PhD student 4** will perform micromagnetic and thermomechanical simulations to optimize additive manufactured heat exchanger structures under the supervision of Prof. Bai-Xiang Xu working closely with Prof. Gutfleisch.

All applicants must have an excellent capability to discuss, write and communicate results in English, good team-working skills and a very high level of commitment. The PhD students must have the discipline to complete a doctoral thesis within 3.5 years. We particularly welcome applications from women.

Interested and qualified candidates should provide (1) a cover letter describing their motivation and expertise for the specific position, (2) full CV with list of publications and certificates, and (3) two letters of recommendation. Summarized in one pdf file only, the **application** should be sent to [coolinnov@fm.tu-darmstadt.de](mailto:coolinnov@fm.tu-darmstadt.de).

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