

Search for novel Magnetocaloric Materials

Publieke samenvatting / Public summary

Aanleiding

Currently the most promising magnetocaloric materials for near room-temperature heat-pump applications are quinary compounds based on Mn-Fe-P-Si-B. Depending on the stoichiometry these materials order ferromagnetically between 150 and 450K. This opens up a wide range of heat pump applications, and first real life appliances are recently presented. However, based on a simple model it has been claimed that it should be possible to design even better magnetocaloric materials. Larger magnetocaloric effects in lower fields can significantly enhance the competitiveness of magnetic cooling and heat pumping near room temperature.

Doelstelling

The project aims at further improving our knowledge and understanding of magnetocaloric materials and at the development and characterization of novel magnetocaloric materials that can efficiently operate in magnetic heat pumps.

Korte omschrijving

Here we propose a systematic search for novel materials with improved properties based on earth abundant and non-toxic ingredients.

Resultaat

Finding new magnetocaloric materials that outperform the currently available materials Shall have considerable impact on the use of magnetocaloric materials and the market introduction of magnetocaloric devices.

Projectinformatie / Project information

Projectnummer / Project number

TKITOE140701

Subsidiebedrag / Grant amount

€ 170.000,00

Algemene informatie / General information

Publicaties en materialen / Publications and attachments

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Eindrapport Magnetocaloric Materials 2019 (TKITOE140701)

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