From a magnet to a heat pump

The magnetocaloric effect (MCE) is the thermal response of a magnetic material to an applied magnetic field. Magnetic cooling is a promising alternative to conventional vapor compression technology in near room temperature applications and has experienced significant developments over the last five years. Although further improvements are necessary before the technology can be commercialized, researchers were mainly focused on the development of materials and optimization of a flow system in order to increase the efficiency of magnetic heat pumps. The project, presented in this paper, is devoted to the improvement of heat pump and cooling technologies through simple tests of prospective regenerator designs. A brief literature review and expected results are presented in the paper. It is mainly focused on MCE technologies and provides a brief introduction to the magnetic cooling as an alternative for conventional vapor compression technology.

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