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## Elastocalorics - Cool into the future?!

Elastocalorics is an innovative, disruptive heating and cooling technology that has been declared by the EU Commission and the US Department of Energy as the most promising alternative to existing vapor compression processes due to its high energy efficiency and absolute climate friendliness. The technology is based on the extraordinary heating and cooling capacity of special metals, so-called shape memory alloys, e.g. nickel-titanium. During simple mechanical loading and unloading of superelastic shape memory alloys, considerable amounts of latent heat are released or absorbed by phase transformations in the crystal lattice, so that temperature differences of about 40 K can already be generated with currently available materials originally developed for biomedical purposes. The talk will give an overview of preliminary experimental investigations to identify thermodynamically optimized processes as well as the development of a first machine demonstrator.