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Spin Caloritronics: spin-dependent thermoelectrics and beyond

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Condensed matter physicists hope to alleviate the various energy crises that threaten our way of life through research into the management and recycling of waste heat by solid state structures and devices. In particular, spin caloritronics investigators study the role of the electron's spin in the flow, control, and transformation of heat currents in magnetic materials in order to add new functionalities and increase the efficiency of existing thermoelectric technology. In this talk I will give an overview of spin caloritronics and explain our present understanding of the underlying physics.