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Concept of Linear Thermal Circulator Based on Coriolis forces[1]
HUANAN LI, TSAMPIKOS KOTTOS, Wesleyan University — Directional transport and the creation of non-reciprocal devices that control the flow of energy and/or mass at predefined directions have been posing always fascinating challenges. In this contribution, we show that the presence of a Coriolis force in a rotating linear lattice imposes a non-reciprocal propagation of the phononic heat carriers. Using this effect we propose the concept of Coriolis linear thermal circulator which can control the circulation of a heat current. A simple model of three coupled harmonic masses on a rotating platform allow us to demonstrate giant circulating rectification effects for moderate values of the angular velocities of the platform.

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