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Non-reciprocal acoustic transport in media with spectral asymmetry and losses ANDREA KLEEMAN, RAHUL DEORA, HUANAN LI, FRED ELLIS, TSAMPIKOS KOTTOS, Department of Physics, Wesleyan University, Middletown CT-06459, USA, ILYA VITEBSKIY, The Air Force Research Laboratory, Sensors Directorate, Wright Patterson AFB, OH 45433 USA — We propose a novel scheme for acoustic isolators, which rely on the interplay of spectral asymmetry and distributed losses. The spectral asymmetry is imposed to the system via a flow, which is moving inside a corrugated waveguide with a constant velocity. A result of this spectra asymmetry is that left and right moving acoustic waves have different group velocities. Then, depending on the direction of the incident acoustic signal, inherent losses result in different level of attenuation of the transmitted signal. The outgoing acoustic wave has the same frequency characteristics as the incoming one. An experimental realization of our proposal is also discussed.

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