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Coherent control of Casimir force in a chiral medium JABIR HAKAMI, M. SUHAIL ZUBAIRY, Institute for Quantum Science and Engineering (IQSE) and Department of Physics and Astronomy, Texas A&M University, College Station, Texas 77843, USA — Chirality has been previously reported as a way to observe both attractive and repulsive Casimir forces. Here we propose the coherent control of the Casimir force between two identical atomic chiral media. A magnetic field is applied to a specific example system to split the detuning as well as the refractive indices for the two circularly polarizations, which leads to chirality. It is shown that, by controlling the strength of an external magnetic field, the Casimir force can switch between attractive and repulsive force.

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