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Slowing and Stopping Supersonic Beams with an Atomic Coilgun ADAM LIBSON, EDVARDAS NAREVICIUS, CHRISTIAN G. PARTHEY, ISAAC CHAVEZ, JULIA NAREVICIUS, Center for Nonlinear Dynamics, University of Texas at Austin, UZI EVEN, Sackler School of Chemistry, Tel Aviv University, MARK G. RAIZEN, Center for Nonlinear Dynamics, University of Texas at Austin — We report the stopping of a supersonic beam of metastable neon using an atomic coilgun. The coilgun relies on the Zeeman effect, and uses pulsed magnetic fields of up to 5.2 T to bring atoms from 446 m/s to near rest. Additionally, we have implemented the coilgun to slow a supersonic beam of molecular oxygen from 458 m/s to 238 m/s. This method can be applied to stop and trap any paramagnetic atom or molecule. Future applications will be discussed.

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