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**Shock-acceleration of a pair of gas inhomogeneities** JOSE ALONSO NAVARRO NUNEZ, DANIEL REESE, JASON OAKLEY, DAVID ROTHAMER, RICCARDO BONAZZA, University of Wisconsin-Madison — A shock wave moving through the interstellar medium distorts density inhomogeneities through the deposition of baroclinic vorticity. This process is modeled experimentally in a shock tube for a two-bubble interaction. A planar shock wave in nitrogen traverses two soap-film bubbles filled with argon. The two bubbles share an axis that is orthogonal to the shock wave and are separated from one another by a distance of approximately one bubble diameter. Atomization of the soap-film by the shock wave results in dispersal of droplets that are imaged using Mie scattering with a laser sheet through the bubble axis. Initial condition images of the bubbles in free-fall (no holder) are taken using a high-speed camera and then two post-shock images are obtained with two laser pulses and two cameras. The first post-shock image is of the early time compression stage when the sphere has become ellipsoidal, and the second image shows the emergence of vortex rings which have evolved due to vorticity depostion by the shock wave. Bubble morphology is characterized with length scale measurements.

Jose Navarro Nunez
University of Wisconsin-Madison

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