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Shock Refraction at Semi-Rigid Interfaces GABRIELLE MILLER, JAMES REYNOLDS, Sandia National Laboratories — We consider a strong spherical air shock encountering a planar interface separating the air from a medium of significantly higher impedance, with the goal of obtaining an approximate analytic description. Before encountering the interface, the incident air shock is well described by the Taylor-Sedov solution for a point blast. The behavior of the reflected and transmitted shocks differs depending upon the height of burst. For moderate heights, despite the relatively small amount of energy transferred, the pressure in the second medium may be much higher than that behind the air shock due to the strong impedance mismatch [1]. Near-surface blasts may be further complicated by the entrainment of material from the second medium and/or the deflection of the interface caused by the strong air shock. For the present study, we ignore the effects of entrainment and assume that the deformation of the interface is small compared to the height of burst. We then investigate the relationship between energy loss into the second medium and the reflected air shock. [1] L. Henderson, M. Jia-Huan, S. Akira, T. Kazuyoshi, Fluid Dynamics Research **5**(5-6), 337 (1990)

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