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Shock waves and obstacles: a tale of multiple reflections¹ ALEXANDER IVANOV, CHRISTINA SCAFIDI, NICOLAS FASSARDI, TUGRA GOKCAY, University of California, San Diego, SARA DOMINGUEZ, INGRID RIVERA, None, VERONICA ELIASSON, University of California, San Diego — The interaction of a planar shock wave with multiple square obstacles (containing one, two or three semi-circular grooves) arranged in the shape of a logarithmic spiral is studied to find the attenuation characteristics of both the transmitted and reflected shock waves. The experiments are performed using a conventional horizon-tal shock tube with an inner square-shaped cross section. Three shock wave Mach numbers, M = 1.2, 1.25, and 1.4 are investigated using high-speed schlieren photography and pressure measurements. The attenuation characteristics for all cases are compared using a non-dimensional attenuation factor for both the transmitted and reflected shock waves. Results will be discussed for the varying incident shock Mach numbers and obstacles with different number of grooves in.

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Veronica Eliasson University of California, San Diego

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