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An Investigation of The Reticulated Foam - Perforated Steel Sheet Sandwich Structure As A Blast Mitigation Media[1] THUY-TIEN NGOC NGUYEN, WILLIAM PROUD, Institute of Shock Physics, Imperial College London, INSTITUTE OF SHOCK PHYSICS, IMPERIAL COLLEGE LONDON COLLABORATION, THE ROYAL BRITISH LEGION CENTRE FOR BLAST INJURY STUDIES AT IMPERIAL COLLEGE LONDON COLLABORATION — Explosions have always been the main cause of injuries during battles and conflicts, with improvised explosive devices (IEDs) becoming more and more common nowadays. In this paper, the interaction between blast waves and sandwich structures of reticulated foam and perforated sheets, with varying thickness and configuration, is studied using an air-driven shock tube apparatus. The mitigation effects for primary blast injuries of these structures are discussed in terms of pulse shape, pressure magnitude as well as shock impulse. Schlieren photography together with other high-speed imaging was also used to visually investigate the matter. The results show that lower open area of perforated sheet and increased thickness of foam offer best protection. However, below a threshold thickness, no mitigation is seen.

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Thuy-Tien Ngoc Nguyen
Institute of Shock Physics, Imperial College London

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