

QUANTITATIVE VISUALIZATION OF EXPLOSION USING BACKGROUND ORIENTED SCHLIEREN METHOD

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This paper describes three-dimensional visualization of explosion generated by small-amount of explosive. The visualization method used was background-oriented schlieren (BOS) method with multiple high-speed cameras with synchronization. The explosive used was a PETN pellet with a mass of 1.42 g. The explosive was ignited with a detonation. The shock wave was visualized from each 30 degree. Visualized images were processed by algorithm to reconstruct three-dimensional density distribution inside the shock front. The resultant reconstructed density distribution was compared with the result provided by numerical analysis. As a result, development of shock front of the reconstructed image agreed with numerical one. While, density profile inside the shock front was not with fine accuracy.