



## Characterization of Detonation Phenomena Observed in High-Speed, Visible Imagery (Paperback)

By Trevor W Warren

Biblioscholar, United States, 2012. Paperback. Condition: New. Language: English . This book usually ship within 10-15 business days and we will endeavor to dispatch orders quicker than this where possible. Brand New Book. Measurements for radius, angular velocity, initial time of observation, and final time of observation were made for turbulent vortices around detonation fireballs. A proxy for vortex power, determined through unit analysis, was found to correlate well to initial (and final) time of observation with  $R^2$  equal to 0.8572. The linear trend on a  $\log_{10}$ - $\log_{10}$  plot was indicative of a rapid decrease (over 10-1 s) in power associated with the decay of the fireball. Predictions, based on turbulent spectral theory were made for root-meansquare velocity fluctuations and Reynolds numbers, both as functions of time. In addition, reflected shock speeds inside the fireball were found to be, on average, 69 higher than those of the un-reflected shock outside. This difference in speed was used to estimate the adiabatic exponent inside the fireball. Values of the adiabatic exponent were found to range between 1.08 and 1.3, while exhibiting a decreasing trend in time, and a weak quadratic dependence on time. Lastly, comparisons of the primary and secondary shock velocities showed...



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