Abstract Submitted
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Optical Emission Studies of Micro-Plasma Balls Formed from Laser Induced Breakdown in Water L. HUWEL, O. FINARD, R. HAYDAR, E.B. JONES, T.J. MORGAN, Wesleyan University, W. GRAHAM, Queens University Belfast — We present experimental results on the optical emission resulting from nanosecond pulse laser induced breakdown in distilled water. A Q-switched 1064 nm wavelength Nd:YAG laser is focused into a water cell and light is observed at 90 degrees to the laser beam propagation axis using two synchronized intensified-CCD cameras and a spectrometer. Both temporal and spatial emission dependence have been recorded. Signal is observed up to 500 ns after ignition. The spatial extent of the emission is about 3.5 mm and the center-of-emission intensity propagates away from the laser with delay time. The emission data reveal a disconnected string of micro-plasma balls along the laser propagation axis of size tens of microns resulting from a single laser shot, and correlated in time and space. Detailed analysis of the structure and time evolution of the data will be presented at the conference including spectroscopic results.

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