

Abstract Submitted
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Construction of a Laser Induced Breakdown Spectroscopy Setup¹

JOSEPH MAYS, ANDRIA PALMER, JAMES AMOS, TOM DYNKA, LAZLO UJJ, University of West Florida — Laser Induced Breakdown Spectroscopy (LIBS) is a practical spectroscopy to determine the chemical and atomic composition of materials. The third harmonic output of a Nd:YAG Q-switched laser generating 5ns pulses with 10Hz repetition rate was used to ablate the sample and create a micro-plasma. The emission of the radiating plasma was focused into an optical fiber with 0.22 numerical aperture. The spectra was measured with an Ocean Optics micro spectrometer. A synchronized shutter was used to select single laser pulses. In order to reach the breakdown threshold of the sample using the available energy of the laser pulses (<5 mJ) a beam expander and a parabolic mirror was used for tight focusing. The optical and technical details including the characterization of the system will be presented. LIBS spectra taken from a variety of metal and organic samples show appropriate selectivity for quantitative and qualitative analysis for materials.

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James Amos
University of West Florida

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