

Abstract Submitted
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Laser Induced Breakdown Spectroscopy of Metals¹ ANDRIA PALMER, CARLOS LAWHEAD, LASZLO UJJ, University of West Florida — Laser Induced Breakdown Spectroscopy (LIBS) is a very practical spectroscopy to determine the chemical composition of materials. Recent technical developments resulted in equipment used on the MARS Rover by NASA. It is capable of measuring the emission spectra of laser induced plasma created by energetic laser pulses focused on the sample (rocks, metals, etc.). We have develop a Laser Induced Breakdown Spectroscopy setup and investigated the necessary experimental and methodological challenges needed to make such material identification measurements. 355 and 532 nm laser pulses with 5 ns temporal duration was used to generate micro-plasma from which compositions can be determined based on known elemental and molecular emission intensities and wavelengths. The performance of LIBS depends on several parameters including laser wavelength, pulse energy, pulse duration, time interval of observation, geometrical configuration of collecting optics, and the properties of ambient medium. Spectra recorded from alloys (e.g. US penny coin) and pure metals will be presented.

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