

Abstract Submitted
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***Escherichia coli* identification and strain discrimination using nanosecond laser-induced breakdown spectroscopy** STEVEN REHSE, JONATHAN DIEDRICH, Wayne State University, Department of Physics and Astronomy, SUNIL PALCHAUDHURI, Wayne State University, Department of Immunology and Microbiology — Three strains of *Escherichia coli*, one strain of black mold and one strain of *Candida albicans* yeast have been analyzed by laser-induced breakdown spectroscopy (LIBS) using nanosecond laser pulses. All microorganisms were analyzed while still alive and with no sample preparation. Nineteen atomic and ionic emission lines have been identified in the spectrum, which is dominated by calcium, magnesium and sodium. A discriminant function analysis (DFA) has been used to discriminate between the bio-types and *E. coli* strains. This is the first demonstration of the ability of the LIBS technique to differentiate between different strains of a single species.

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