



Laser Induced Breakdown Spectroscopy (LIBS) for Material Analysis

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Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | Spectroscopy Analysis | Laser-induced breakdown spectroscopy (LIBS) is a type of atomic emission spectroscopy, which uses a highly energetic laser pulse as the excitation source, the emission spectrum of the produced plasma will be analyzed via optical spectrum analyzer. In this project, it is built and operate an integrated system using a passively Q-switched Nd:YAG laser system with 9 ns pulse duration and employing nonlinear crystal (KDP for SHG) and (LBO for THG), the change of laser energy gives the ability to change the intensity and to study the characteristics of the system, using (20, 40, 70, and 80 mJ). The experimental part of this project has been focused on building calibration of the system with laboratory experiments to build database of different elements (Al, Cu, Cd, Co, Mn, Ni, Pb, and Zn). Thereafter, the test industrial alloy is (Low carbon steel) to detect their main components via LIBS and to compare the final results with reliable new global system X-ray fluorescence (XRF), the system shows new elements that XRF system cannot detect, there are no sample probation, low cost test and best resulted. | Format: Paperback | Language/Sprache: english | 197...



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