

# NEW TRENDS IN LASER-INDUCED BREAKDOWN SPECTROSCOPY

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## Abstract

The Laser-Induced Breakdown Spectroscopy (LIBS) technique has been proposed as a fast method for material analysis since more than 40 years. In spite of the intrinsic advantages of the LIBS technique with respect to other analytical approaches, some fundamental limitation in precision and reproducibility of the analytical results has limited, up to a few years ago, the developing of this method in the laboratories and in the field. The recent introduction of hand-held LIBS instruments has reheated the interest in the technique; some interesting results in industrial and environmental applications have also re-proposed the technique for in situ analysis. However, also in laboratory applications the introduction of new methods based on nanoparticle enhancement and the development of micro-analyzers for 3D compositional mapping of materials have demonstrated the LIBS technique as a viable alternative to classical chemical-physical analysis. In this communication, we will present an overview of the current applications of LIBS, in situ and in the laboratory. A special emphasis will be given to the growing role of Latin-American research in this field.