

# INSTRUMENTAL CONFIGURATION EFFECT ON THE LIBS ACOUSTIC SIGNAL RESPONSE

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During years, potential of acoustic shockwaves from laser-induced plasmas has been trying to exploit as a standardization score to the optical emission properties, mainly to correct/normalize shot-to-shot plasma inherent instabilities. However, nowadays its in-depth study is revealing that its benefits can go even further, by physically characterizing the studied samples and allowing the enhancement of the discriminative power between spectrally similar samples via data fusion strategies.<sup>1,2</sup>

As is well known, the instrumentation used for the generation of the plasma and the subsequent spectroscopic detection of the light it emits, significantly conditions the analytical information obtained. In this sense, and considering the associative character of the plasma with the acoustic wave recorded, in this work, research is intended to evaluate how the instrumentation affects the recorded acoustic signal; Nd:YAG lasers operating at 1064 nm and 266 nm and miscellaneous types of microphones (commercially available and ad-hoc built, varying in sensitivity, frequency response, ...) have been considered.

In parallel with multielemental LIBS imaging, given the simultaneity of the optical and acoustic phenomena, surface acoustic mapping from different samples performance was evaluated. Results revealed that the first peak-to-peak acoustic amplitude in the sound wave recorded finely describes the morphological characteristics of the interrogated surface; an information that can contribute to a much more complete characterization of the sample under study.

## *References*

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## *Acknowledgements*

This work was supported from Operational Programme Research, Development and Education – „Project Internal Grant Agency of Masaryk University" (No. CZ.02.2.69/0.0/0.0/19\_073/0016943)