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Paper: Normalization of laser-induced breakdown spectroscopy spectra using a plastic optical fiber light collector and acoustic sensor device

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Abstract: To estimate the acoustic plasma energy in laser-induced breakdown spectroscopy (LIBS) experiments, a light collecting and acoustic sensing device based on a coil of plastic optical fiber (POF) is proposed. The speckle perturbation induced by the plasma acoustic energy was monitored using a CCD camera placed at the end of a coil of multimode POF and processed with an in-train image contrast ratio method. The results were successfully verified with the acoustic energy measured by a reference microphone. The proposed device is useful for normalizing LIBS spectra, enabling a better estimation of the sample's chemical composition