



## Laser-Induced Breakdown

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Study of plasma-facing materials and fuel retention

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\*Department of Experimental Physics, Comenius University in Bratislava, Slovakia

**Abstract:** In view of the safe and successful operation of future fusion devices, it is highly important to determine the quantity of retained fuel in the plasma-facing components (PFCs). Also, the choice of plasma-facing materials (PFMs) is a major concern. Owing to its advantages, i.e., in-situ analysis, online monitoring, and fast analysis, etc. Laser-Induced Breakdown Spectroscopy (LIBS) has been found the most promising analytical technique among the few already established techniques, for the quantitative and depth profile study of PFMs, and is being considered to be installed in international thermonuclear experimental reactor (ITER) in the form of a robotic arm. Our research group is dedicated to the study and detailed investigation of fusion-relevant (FR) PFMs using calibration-free LIBS (CF-LIBS). The talk will highlight a short description of the CF-LIBS technique, following some of the key results obtained from the study of FR materials and coatings using ns/ps CF-LIBS.

**Email:** [fusionep-talks@egyplasma.com](mailto:fusionep-talks@egyplasma.com)

**Website:** [fusionep-talks.egyplasma.com](http://fusionep-talks.egyplasma.com)

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