
Topic: SFS-37-2019: Integrated approaches to food safety controls across the food chain (RIA)

Interest expressed by: Dr. Porizka (pavel.porizka@ceitec.vutbr.cz) and Prof. Kaiser (jozef.kaiser@ceitec.vutbr.cz) CEITEC and AtomTrace a.s.

Deadline: 23rd January 2019 (1st stage) – 4th September 2019 (2nd stage)

Description of the offered expertise

Excellence: We, scientists and developers, represent Laser Spectroscopy research group at CEITEC and related start-up company AtomTrace a.s. Our main focus is in the basic and applied research including laser-based spectroscopy (namely Laser-Induced Breakdown Spectroscopy; LIBS). The start-up company targets the development of state-of-the-art LIBS instruments and transfers LIBS technology to individual segments of the market.

We have also considerable experiences with other, complementary techniques to LIBS. Those analytical, spectroscopic techniques are Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS; elemental analysis) and Raman spectroscopy (molecular analysis).

Uniqueness: Our excellence dwells in the synergy of scientific and development teams. We design our LIBS instruments to fit the high-end needs and challenges of various applications (ranging from geology to biology). On one side, we have strong background in the research proved by a rich publication record. Our state-of-the-art LIBS instruments and related SW (data processing) are commercially available and sold world-wide.

Description of potential role

The scope of the project demands *the development of an integrated approach for detecting, assessing and mitigating food safety risks from biological and chemical hazards*. For that we propose to implement the LIBS technique which enables to assess the elemental composition of samples under investigation. Its main benefits and instrumental simplicity and robustness together with reasonable analytical performance. It is possible to adapt the LIBS instrumentation to fit production chain (conveyor belt) or to be compact and portable to enable direct *in-situ* analysis.

We will thus develop a chemical instrument, based on LIBS technique, to fit desired parameters of the applications (size and prize of the system, analytical performance – sensitivity and response time).

We are looking for a partner in the segment of food industry who is eager to extend his production chain by a necessary device providing the quality and safety check, in order to mitigate the safety risk.

Reference to previous successful projects, products, patents and market applications (Max 5)

Through the AtomTrace, a start-up company of CEITEC, we commercially offer LIBS instruments:

- [SciTrace](#)
- [X-Trace](#)

Our publication record can be accessed via a [ResearchGate](#) web-portal.