



Contribution ID: 43

Type: **Talk**

Nanoparticle Enhanced Laser Induced Breakdown for chemical analysis of trace elements

Wednesday, 3 October 2018 14:30 (45 minutes)

In 2013 we proposed the Nanoparticle Enhanced Laser Induced Breakdown Spectroscopy (NELIBS) [1] for enhancing the LIBS performances in terms of signal enhancement in several applications, spacing from metal sample analysis to biological samples [2].

After a few years several groups around the world have applied NELIBS in different applications. Although the promising results presented by several authors, the basic concepts of the laser matter interaction when NPs are deposited on the sample are still receiving poor consideration leading to misunderstand the real advantages and the limitation of this powerful technique [3].

In this view this lecture is aimed to discuss the basic aspects of NPs supported laser ablation and a general overview of the future perspectives and applications of NELIBS.

[1] De Giacomo, A., Gaudiuso, R., Koral, C., Dell'Aglio, M., De Pascale, O. Nanoparticle-enhanced laser-induced breakdown spectroscopy of metallic samples (2013) *Anal. Chem.*, 85 (21), pp. 10180-10187.

[2] De Giacomo, A., Dell'Aglio, M., Gaudiuso, R., Koral, C., Valenza, G. Perspective on the use of nanoparticles to improve LIBS analytical performance: Nanoparticle enhanced laser induced breakdown spectroscopy (NELIBS) (2016) *Journal of Analytical Atomic Spectrometry*, 31 (8), pp. 1566-1573.

[7] Dell'Aglio, M., Alrifai, R., De Giacomo, A. Nanoparticle Enhanced Laser Induced Breakdown Spectroscopy (NELIBS), a first review (2018) *Spectrochim. Acta B*, 148, pp. 105-112.

Summary

Primary author: Prof. DE GIACOMO, Alessandro (University of Bari)

Co-authors: Dr DELL'AGLIO, Marcella (CNR-NANOTEC); Mrs ALRIFAI, Rim (University of Bari); Mrs SALAJKOVÁ, Zita (Brno University of Technology)

Presenter: Prof. DE GIACOMO, Alessandro (University of Bari)

Session Classification: Spectroscopy