## Accepted Manuscript

Title: Hydrocarbon isotope detection by elastic peak electron spectroscopy

Author: I.A. Kostanovskiy V.P. Afanas'ev D. Naujoks M.

Mayer

PII: \$0368-2048(15)00040-7

DOI: http://dx.doi.org/doi:10.1016/j.elspec.2015.02.008

Reference: ELSPEC 46394

To appear in: Journal of Electron Spectroscopy and Related Phenomena

Received date: 13-11-2014 Revised date: 6-2-2015 Accepted date: 11-2-2015

Please cite this article as: I.A. Kostanovskiy, V.P. Afanas'ev, D. Naujoks, M. Mayer, Hydrocarbon isotope detection by elastic peak electron spectroscopy, *Journal of Electron Spectroscopy and Related Phenomena* (2015), http://dx.doi.org/10.1016/j.elspec.2015.02.008

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### ACCEPTED MANUSCRIPT

# **Highlights**

- PCVD hydrocarbon coatings containing protium or deuterium are analyzed via NRA, ERD,
  XPS and EPES
- EPES analysis with modern electron energy analyzer SPECS Phoibos 225 shows a clear signal from the hydrogen isotopes
- Different primary energies and scattering angles help to quantify isotope content from EPES spectra

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