Contribution ID: **3719** Type: **not specified**

O3.304 Plasma assisted synthesis of carbon nanowalls

Wednesday, 10 July 2019 12:25 (15 minutes)

See the full abstract here:
http://ocs.ciemat.es/EPS2019ABS/pdf/O3.304.pdf

Plasmas can be used for the fabrication of novel materials. The interest in novel, often carbonaceous materials with large effective surfaces, high conductivity, stability, is growing due to the downsizing of electrical devices and the demand for low-cost new materials. In particular this work will focus on the analysis of a low temperature plasma (RF –discharge)used for the production of carbon nanowalls (CNWs).
The resulting nanowalls (CNWs) demonstrate interesting characteristics, and have a potential for variety of applications. In our case, we tested electrochemical devices,transistors and biosensors. This work with CNWs is a part of the research on carbon based microelectronic parts of biosensors.
Besides the material analysis of nanowalls (graphene 2D structures) the plasma parameters were analysed and connected with the material analysis in order to understand and control better the plasma processes itself. For example, the self-bias voltageiscorrelated with OES and XPS and NEXAFS analysis of CNW produced in ethylene or acetylene/hydrogen gas mixtures.

Acknowledgements: The authors want to acknowledge the support of the PEGASUS (Plasma Enabled and Graphene Allowed Synthesis of Unique Nanostructures) project, funded by the European Union's Horizon research and innovation program under grant agreement No. 766894. The authors would also like to acknowledge supportobtained by French National Research Agency via project ANR PlasBioSensandANRPlasmaBondand to thank Helmholtz Zentrum Berlin for the allocation of synchrotron radiation beamtime at BESSY II. Experiments at BESSY have been also supported with H2020 Calypso Plus project, grant Nr. 18207084-ST and 182¬07393-ST. F. Traeger acknowledges the funding in the framework of the Erasmus+ Programme of the EU commission.

pppo

Presenter: JAGODAR, A.

Session Classification: LTPD