FAEMCAR: FUNDAMENTAL AND APPLIED ELECTROMAGNETICS OF NANOCARBON

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We participate as a partner (the INFN unit) to the PEOPLE MARIE CURIE ACTIONS International Research Staff Exchange SchemeCall: FP7-PEOPLE-2012-IRSES. FAEMCAR has a duration of 48 months and started its activities on 3rd January 2013. The consortium binds together three Universities and four Research Organizations.

Project Achievements in 2016

Scientific highlights and research achievements The FAEMCAR project focuses on four work packages: WP1 Synthesis and fuctionalization of multi-walled CNTs and fabrication of composite materials on the basis of different forms of nanocarbon; WP2 Electromagnetic response of pure nanocarbons and nanocarbon-based composites in radio, microwave and THz frequency ranges; WP3 Electromagnetic wave interaction with functionalized nanocarbons. Radio frequency and microwave response of saline CNT solutions; WP4 Electromagnetics of graphene and graphene-like structures. Graphical scientific highlights can be found on the web page of the FAEMCAR project (http://www.faemcar.be

Transfer of knowledge and Training activities (workshops)

Transfer of knowledge was realized through the secondment program. This program was particularly useful for early-stage researchers who could be trained in manipulating experimental instruments or using computer codes not available in their home laboratory. In the other way round, experienced visiting researchers could teach young researchers in the visited laboratories. During 2016, a workshop has been organized on topics directly related to the FAEMCAR project, i.e. Nanoscience and Nanotechnology (n&n2016), September 26 - September 29, 2016, Frascati, Italy, with a special FAEMCAR session on September 27. The participant could gain a general overview of the last achievements and perspectives of FAEMCAR. This was particularly true for local PhD students involved in the project together with a few others from abroad who could attend the workshops thank to the mobility program. In so doing, there were trained on different facets of the research.

Publications by LNF Authors in the Year 2016

Copper nanoparticles decorated graphene nanoplatelets and composites with PEDOT: PSS
AV Kukhta, AG Paddubskaya, PP Kuzhir, SA Maksimenko, SA Vorobyova, ...
Synthetic Metals 222, 192-197 (2016)

Shielding properties of composite materials based on epoxy resin with graphene nanoplates in the microwave frequency range
NI Volynets, DS Bychenok, AG Lyubimov, PP Kuzhir, SA Maksimenko, ...
Technical Physics Letters 42 (12), 1141-1144 (2016)

The cluster architecture of carbon in polymer nanocomposites observed by impulse acoustic microscopy
V Levin, Y Petronyuk, E Morokov, L Chernozatonskii, P Kuzhir, V Fierro, ...
physica status solidi (b) 253 (10), 1952-1959 (2016)

Bulk microstructure and local elastic properties of carbon nanocomposites studied by impulse acoustic microscopy technique
V Levin, Y Petronyuk, E Morokov, L Chernozatonskii, P Kuzhir, V Fierro, ...
AIP Conference Proceedings 1736 (1), 020056 (2016)

Electromagnetic properties of graphene nanoplatelets/epoxy composites
A Plyushch, J Macutkevic, P Kuzhir, J Banys, D Bychanok, P Lambin, ...
Composites Science and Technology 128, 75-83 (2016)

Temperature induced modification of the mid-infrared response of single-walled carbon nanotubes
MV Shuba, AG Paddubskaya, PP Kuzhir, SA Maksimenko, G Valusis, ...
Journal of Applied Physics 119 (10), 104303 (2016)

Bilayered graphene/h-BN with folded holes as new nanoelectronic materials: modeling of structures and electronic properties, LA Chernozatonskii, VA Demin, S Bellucci, Scientific Reports 6 (2016)

List of Conference Talks by LNF Authors in the Year 2016

Alexander V. Kukhta, Paddubskaya Alesya G., Kuzhir Polina P.,
Maksimenko Sergey A., Vorobyova Svetlana., Bellucci Stefano,
Khanna Pawan K, “Electroactive polymer based conducting, magnetic, and luminescent triple composites, the 5th International Conference “Smart and Multifunctional Materials, Structures and Systems”, CIMTEC 2016 - 7th Forum on New Materials, Perugia, Italy, June 5 to 9, 2016

S.Bellucci, Electromagnetic properties of nanocomposite materials, Univ. Cassino Departmental Seminar, May 13, 2016