2nd World Congress and Expo on

GRAPHENE & 2D MATERIALS

November 06-07, 2017 | Frankfurt, Germany

Konstantinos Papagelis

University of Patras, Greece

Mechanical strain in two-dimensional materials

The application of mechanical strain in single- and few-layer graphenes as well as in other two dimensional (2D) materials (MoS_2, WS_2) is an important perturbation to tune their optical and electronic properties. Raman spectroscopy has been proven a very successful technique to study the influence of mechanical strain in 2D materials under uniaxial tension, compression or hydrostatic (biaxial) strain. The monitoring of optical phonons seems to be the clearest and simplest way to quantify the macroscopic stress/strain imparted to 2D membranes. In this speech, recent results on the uniaxial and biaxial Raman response of selected 2D materials will be presented and discussed. The results will be coupled by theoretical analysis based on molecular dynamics simulations using accurate atomistic potentials. Emphasis should be given on the perspectives in the design of graphene based nanocomposites and flexible electronics.

Biography

Konstantinos Papagelis is a Professor at the Physics Department of the University of Patras and collaborating Faculty Member at FORTH/ICEHT. He conducted research for more than four years at the University of Sussex (UK), Regensburg (Germany), Bristol (UK) and Technische Universität Berlin (Germany). His current research activities focused on the optical and mechanical properties of graphene and other 2D materials and the production of high volume fraction nanocarbon/polymer nanocomposites. He has published more than 130 scientific articles and received the award of the John S Latsis Public Benefit Foundation in 2011. He is Member of the Editorial Board of Scientific Reports (NPG).

kpapag@upatras.gr

Notes: