

## 5<sup>th</sup> International Conference on Nanotek & Expo

November 16-18, 2015 San Antonio, USA

## Characterization, mechanical and thermochemical properties of 2D carbon-based nanomaterials studied by calorimetry and thermal analysis

**Kristina Lilova** Setaram Inc., USA

Graphene, single-walled (SWCNTs) and multi-walled nanotubes (MWCNTs), onion-like carbons (OLCs) and nanodiamonds are attractive materials due to their two-dimensional structure, unique properties and potential applications in many fields as electronics, catalysts, photonics, robotics, mechanics, energy storage and orthopedics. All those new developments require a thorough study of the mechanical, physical and chemical properties of the nanocarbons and the corresponding composites. The density and the thermal expansion coefficients of CNTs-containing composites can be investigated using thermomechanical techniques. Thermogravimetry combined with differential scanning calorimetry (TG-DSC), is a powerful method to determine the amount of the impurities, the effect of the thermal treatment and the thermal stability of CNTs and graphene composites. The isothermal immersion and oxidative calorimetry are commonly used to study the surface properties and thermodynamic stability of CNTs and OLCs, which are critical for their applications as catalysts and energy storage materials. These techniques will be introduced and illustrated by several examples on 2D nanomaterials.

## Biography

Kristina Lilova has completed her PhD from University Henri Poincaré – Nancy 1, France (currently University of Lorraine) and Post-doctoral studies from University of California, Davis. She is currently an Applications Manager at Setaram Inc. She has published 24 papers and book chapters in reputed journals and has been serving as an Associated Editor of American Mineralogist and Frontiers in Energy Research journals.

kristina.lilova@setaram.com

Notes: