



Lunedì 17 febbraio 2020 alle ore 15:00 presso l'aula G

il Prof. Carlo S. Casari

Micro- and Nanostructured Materials Laboratory (NanoLab)
Department of Energy, Politecnico di Milano
via Ponzio 34/3, 20133 Milano

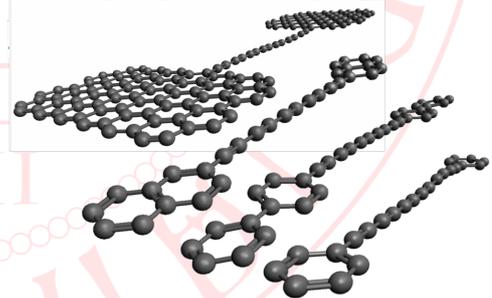
terrà il seminario dal titolo:

Carbon atomic wires: from carbyne to 2D structures beyond graphene



In the last 30 years the discovery and advent of carbon nanostructures such as fullerenes, nanotubes and graphene have pushed further the fundamental science of carbon and have opened new opportunities of nanotechnology applications. These achievements have nurtured the interest for searching novel carbon nanosystems, such as carbon-atom wires as linear structures with sp -hybridization [1]. Carbon-atom wires as the ultimate 1-D carbon system are interesting for fundamental open questions in physics, chemistry, and have a largely unexplored potential for materials science and engineering. In fact, theoretical calculations have outlined outstanding mechanical, thermal and electronic properties which can be tuned by controlling the wire length and the terminating functional group.

Here we present the synthesis and characterization of isolated carbon-atom wires as well as sp - sp^2 hybrids with particular attention to vibrational spectroscopy (Raman and surface enhanced Raman scattering - SERS) to provide insight on the structure and electronic properties of these systems. Structure-property relationship is discussed for different systems experimentally available [2,3]. Vibrational properties are also predicted to give marker bands in the Raman spectra of 2D sp - sp^2 nanoribbons [4].



-
- [1] C.S. Casari, M. Tommasini, R.R. Tykwinski, A. Milani *Nanoscale* **8**, 4414 (2016)
[2] A. Milani et al. *Scientific Reports* **9**,1648 (2019)
[3] A. Rabia et al. *Nanoscale* **11**, 18191 (2019)
[4] P. Serafini et al. *Phys. Rev. Materials* **4**, 014001 (2020)
-

La presenza della S. V. sarà molto gradita