allied academies Joint Event on
Global Congress on
BIOTECHNOLOGY
&
Annual Congress on
EMERGING MATERIALS AND NANOTECHNOLOGY
September 06-07, 2018 | Bangkok, Thailand
Paola De Padova, Biomed Res 2018, Volume 29 | DOI: 10.4066/biomedicalresearch-C4-009

Paola De Padova

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Biography

Paola De Padova Senior Scientist, with over 20 years of work experience at the National Research Council, Institute of Structure of Matter, Rome, Italy. Well known and appreciated worldwide for her research in the surface science physics, with special attention to two-dimensional (2D) nanostructures and 2D systems;

Pioneer in the synthesis of new allotropic form of silicon, namely Silicene, one atom thick silicon layer arranged in honeycomb structure, contributing significantly to the development of 2D elementary systems beyond graphene worldwide.

Author of more than 80 manuscripts published in International journals of high reputation and impact factor; H-index is 26 and she has been serving as an editorial board member of reputed Journals such as Journal Physics Condensed Matter and Associated Editor of 2D Materials, from IOP.

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SILICENE AND MULTILAYER SILICENE

Up to now, silicene, one atom thick honeycomb-like arranged silicon sheet, and multilayer silicene have represented an interesting challenge either for the synthesis of new Si allotrope (2012, 108, 155501, Phys. Rev. Lett.) or the birth of the emerging topic on two-dimensional (2D) elemental materials (2018, 41, 175, Rivista del Nuovo Cimento) and 2D Van der Waals heterostructures (2013, 19, 499 Nature; 2016, 353, 6298, Science). Beyond graphene, one atom thick honeycomb arranged carbon sheet, whose discovery deserved in 2010 Physics Nobel Prize (Nobelprize.org): "For the groundbreaking experiments regarding the two-dimensional material graphene", Silicon is the first element of group 14 manifested both exotic structural and electronic properties, showing Dirac cone and electron fermions quasiparticle behavior, nevertheless its no free standing peculiarity (2013, 102, 163106, App. Phys. Lett.; 2013, 25, 382202, J. Phys. Condens. Matter). Multilayer silicene, already synthesized on both single crystal Ag(111) (2014, 1, 0211003, 2D Materials; 2016, 3, 031011, 2D Materials) and on Si(111) after the interface formation of Si(111)-√3×√3 Ag (2017, 121, 27182, J. Phys. Chem. C), displayed the ambipolar character in the realization of the first multilayer silicene-based field effect transistor (2017, 11, 3376, ACS Nano).

Acknowledgments

"With the contribution of the Italian Foreign Affairs Ministry and of International Cooperation, General Direction for the Italy Country system promotion".

Note: