nanoSeminar Series 2021

Institute for Materials Science

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Institute for Materials Science and Nanotechnology,
Technical University Dresden

“Synthesis of graphene monolayers by LPCVD method for biosensor application”

Thursday, December 9th 2021
13:00 – 14:00

Normal: Seminar Room 115, Hallwachsstr. 3 (HAL)
Pandemic version: https://tinyurl.com/nanoSeminar-GA

In this work, graphene was synthesized with the LPCVD method allowing to obtain high quality graphene on large surfaces.
In order to characterize the quality and the morphology of the graphene layers obtained, characterization techniques such as XRD, Raman and SEM spectroscopies were used.
The results show that annealing favors the cu (111) surface, which increases the probability of obtaining single-layered graphene. On the copper surface, the graphene blanket is a continuous, uniform, high-quality monolayer with an I2D / IG ratio = 2.23 and with ID = 0 (a.u).
As a promising transducer for biosensors, graphene shows its biological recognition in electrochemical detection without a marker sufficiently sensitive and specific to the hybridization of amino-modified DNA which results in the appearance of a semi-circle in Nyquist plot in low frequencies.

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Sabrine Toumi studied Physics and received her Master's degree in Quantum Physics in 2019 from the Faculty of Mathematical, Physical and Natural Sciences of Tunis (FST). Sabrine conducted her Master's Thesis at the Center for Research and Technology of Energy (CRTEn) in Tunisia under supervision of Pr. Radhouane Chtourou. Her previous research primarily focused on opotoelectronic caracterization on SWCNTs. Now, she is interested in the synthesis of graphene monolayers by LPCVD method and it's integration into a biosensor devices.