



COLLEGE OF ENGINEERING AND PHYSICS

Physics Department

PRESENTS A SEMINAR

Nanostructuring and Defects Engineering in Advanced Materials using Ion Beam Technology

Speaker:



Dr. Ayman El-said

Date: Monday, February 23rd, 2026

Time: 11:00 a.m.

Location: Bldg. 6/Room 125

Abstract:

Ion beam technology using advanced ion sources and accelerators provides not only exciting physical phenomena but also processing of various advanced materials in an efficient and controlled way. Both highly energetic (MeV–GeV) heavy ions and slow (eV–keV) highly charged ions exhibit a unique capability to fabricate surface nanostructures through single-ion impacts in a wide range of materials. The type, size and location of the induced modifications depend highly on ion beam parameters including kinetic energy, electronic energy loss, nuclear energy loss, dose, charge state and ions species.

This talk will present various aspects of ion-beam-induced modifications in different material systems and discuss the underlying formation mechanisms. In addition, recent promising advances in defects engineering in both two-dimensional (2D) and three-dimensional (3D) materials will be highlighted.

Biography:

Dr. Ayman Sherif El-Said received his Ph.D. from Heidelberg University, Germany in the field of ion-solid interaction at the GSI Helmholtz Centre for Heavy Ion Research (Germany). This is directly after obtaining the DAAD German scholarship. He also received the Lise Meitner Fellowship from the Austrian science Fund (Austria) in 2005. This fellowship enabled him to conduct his postdoctoral research work at the Vienna University of Technology. His research stay in Vienna was extended as a senior scientist by working in the same research area, namely nanostructuring using ion beam technology. Dr. El-Said worked as experienced researcher at the Institute of Ion beam Physics and Material Research of Helmholtz-Zentrum Dresden-Rossendorf (Germany) by obtaining the Alexander von Humboldt fellowship for experienced researchers in 2009. He received the state award in Physics from the Egyptian Academy of Science and Technology in 2011. He received also recognition from KFUPM by getting the “Excellence in Research Award” in 2018. The research findings by Dr. El-Said were published in prestigious journals in physics including Phys. Rev. Lett, Phys. Rev. Appl., Phys. Rev. B, Appl. Phys. Lett and recently in Phys. Rev. E.

The recent research interest of Dr. El-Said is applying ion beam technology in semiconducting materials for promising applications in photonics and quantum technology.

. All faculty, researchers and students are invited to attend.



Physics Department, College of Engineering and Physics

Telephone: +966 (13) 860 2255, Email: c-physics@kfupm.edu.sa , Website: www.kfupm.edu.sa Copyright © 2024 King Fahd University of Petroleum & Minerals