

2D Materials Imaging and Nanofabrication in the FIB/SEM

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2D materials show unique physical and chemical properties with a huge potential in delivering technical solutions impacting on the major EU societal challenges. Since the inception of graphene, 2D materials have shown potential for exploitation in many fields of technology such as e.g. renewable energy, microelectronics, photonics, sensors. On this ground, a huge research effort has been deployed in the last 10 years with the objective to speed up the path toward the full commercial exploitation leading to the EU funding of the Graphene Flagship.

However, graphene is not the only 2D material under the spotlight. In the latest years the discovery of graphene companions composed either of single or multiple elements has given further impulse to the research.

This talk will focus on the application of the FIB/SEM TESCAN GAIA 3 installed at the Microscopy Center at ICCOM-CNR as a tool to i) characterize 2D nanomaterials and ii) to produce nanostructures on them. The talk will cover investigations performed mostly on phosphorene. Some application of the reported methods to graphene are also discussed.