



Contribution ID: 14

Type: **not specified**

## Graphene based nanoelectronic - a practical approach

*Friday, 7 July 2023 09:00 (1h 30m)*

The field of nanoelectronics has experienced a significant shift with the emergence of graphene, a two-dimensional material with remarkable electronic properties. This practical demonstration will serve to present a fabrication process of a graphene-based transistor. The transistor will be prepared during the lecture in the clean room of the Laboratory of Organic Matter Physics of the University of Nova Gorica. We will delve into the fabrication techniques, with a hand-on lecture on the technique of micromechanical exfoliation, the recognition of few layer graphene by the optical microscope and fabrication of a graphene-based transistor by means of laser lithography.

### Objectives

- Review of state-of-the-art in graphene-based electronics.
- Mechanical exfoliation of graphene flakes using a scotch-tape method
- Optical microscopy of mechanically exfoliated graphene flakes
- Presentation of laser lithography process to prepare graphene-based transistor
- Electrical characterization of graphene-based transistor

### Outcomes

- Participants learn about mechanical exfoliation of two-dimensional materials
- Participants can identify graphene flakes under the microscope.
- Participants learn and observe laser lithography process to prepare graphene-based transistor.
- Participants understand the role of different layers of graphene-based transistor.
- Participants understand electrical characteristics of graphene-based transistor

**Primary authors:** TOMSIC, Erika (University of Nova Gorica); PAVLICA, Egon (UNG)

**Presenters:** TOMSIC, Erika (University of Nova Gorica); PAVLICA, Egon (UNG)

**Session Classification:** Nanotechnology