L2D2

Laser digital transfer of 2D materials enabled photonics: from the lab 2 the fab

Consortium

National Technical University of Athens

Graphenea

Mellanox TECHNOLOGIES

Bar-Ilan University

EXELIXIS Research Management & Communication

Professor
Ioanna Zergioti

National Technical University of Athens
Heroon Polytechniou 9, 15780 Zografou, Greece
+30-210-772-3345
zergioti@central.ntua.gr

l2d2project.eu

Project number:
101058079
Programme:
Horizon Europe
HORIZON-EIC-2021-TRANSITIONOPEN-01
HORIZON-EIC
Starting date:
1 October 2022
Project duration:
36 months
Coordinator:
Prof. Zergioti Ioanna
National Technical University of Athens

Funded by the European Union

L2D2 Background

To unlock the full potential of graphene and 2D materials for industrial applications, **we need upscaling growth technologies** that maintain high quality at large wafer sizes, enabling seamless integration with standardized processes. A green, solvent-free method for transferring single-layer **graphene and 2D materials** at wafer scale, promises to revolutionize emerging applications across various market segments. Building on the success of the H2020-FET-open project LEAF-2D, L2D2 aims to deliver **the first scalable digital process** for growing and integrating graphene (Gr) and leading 2D materials like MoTe2 and WS2, ensuring exceptional optoelectronic properties, quality, and uniformity on-demand for Si photonics and CMOS compatible substrates.

L2D2 Objectives

- **Provide** the technology to upscale Gr and other 2D materials on the 8-inch scale at industrial grade quality.
- **Deliver** a laser-based, single-step and green printing solution for wafer-scale integration of 2D materials.
- **Develop** a deep-tech business model that will safeguard the project's foreground and translate it into innovations with significant potential for exploitation.
- **Establish** a spin-out company with a team of co-founders comprising highly proficient entrepreneurs possessing equal expertise in technology, innovation, and business.
- **Pursue an efficient and rapid** commercialization route, leveraging strategic partnerships with global leaders in Graphene and Si photonics, along with effective IP utilization.