

# INTERSECT

**Interoperable Material  
-to-Device  
simulation box  
for disruptive electronics**

2019-2022

## THE PROJECT

INTERSECT is a EU H2020 project that aims at leveraging the European leadership in materials modelling software and infrastructures, as embodied in the track record of the consortium, to provide industry-ready integrated solutions (IM2D) that are fully compliant with a vision of semantic interoperability driven by standardized ontologies.

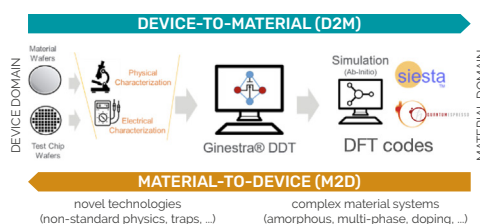
## OBJECTIVES

- To accelerate the uptake of materials modelling software in the field of synaptic electronics and neuromorphic computing
- To re-use and seamlessly integrate advanced knowledge and technology
- To develop core interoperability based on ontology foundations and state-of-the-art software engineering standards
- To create reversible workflows and integrated and modular simulation frameworks
- To develop disruptive electronics
- To integrate the IM2D platform and developed modules into existing and future EU infrastructures



## ADVANCED SOLUTIONS FOR INDUSTRY-DRIVEN RESEARCH

IM2D - interoperable material-to-device - is a multi-physics, multi-model, multi-equation, hierarchical, and scale-reversible model for material-to-device and device-to-material optimization for an easier exploration of the material workspace from an electronic device-oriented industrial perspective.



## IM2D FEATURES

- Materials properties on demand from quantum mechanical DFT calculations
- Device modelling: physics-based description of charge/ion transport and charge trapping; virtual lab for device characterization; reliability and variability analysis; optimization and design of devices
- Different pre-selected user's levels for input preparation, calculation run, and output analysis to match different user profiles and skills
- Automated workflows for multistep simulation and data curation
- Access to materials databases
- Easy friendly graphical interface and analysis tools
- Possibility to protect data on private firewall

IM2D will be officially released in winter 2021. A beta version is now available on request for early adopters. If you are interested, please contact us at [intersect@nano.cnr.it](mailto:intersect@nano.cnr.it)

## CONSORTIUM

The INTERSECT Consortium comprises seven academic, industrial, and R&D Institutions from five European countries.



EPFL



imec



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 814487 (H2020-NMBP-TO-IND-2018).



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