INFRACHIP
European Research Infrastructure on Semiconductor Chips

Research Accelerator Programme

"Flexible oxide TFT electronics: from design to circuit fabrication and characterization"

Where: UNINOVA, Almada, Portugal

When: 24, 25 and 26 July 2024

Application deadline: 21st June 2024

Summary

This RAP will provide an on-site introduction to the state-of-the-art technology/facilities available at UNINOVA related to flexible oxide thin-film transistors (TFTs). Participants will have contact with the multiple steps required to take oxide TFTs from device level design up to circuit integration, as described here: https://infrachip.eu/thin-film-circuits-for-sensors/
Costs for travel, accommodation and access to infrastructure are covered by INFRACHIP project for up to 8 applicants.

Program

During its 3 days, the RAP will be covering 3 modules:

Design and simulation

- Introduction to TCAD and how it can help to understand oxide TFTs
- Characteristics and limitations of oxide TFTs for circuit design
- Case study #1: Logic gates and digital circuits (Oscillators, multiplexers…)
- Case study #2: Analog circuits (amplifiers, comparators…)
- Case study #3: System implementation (energy management circuit)

Fabrication in clean room environment

- Sputtering of thin film electrodes
- Atomic layer deposition of low-temperature high-κ dielectrics
- Micro/nanoscale patterning using direct laser writing and nanoimprint lithography

Characterization

- Electrical characterization of oxide TFTs
- Electrical characterization of flexible circuit blocks
- Failure analysis using SEM/FIB

Calendar

When	What	Where
Day #1, Morning	Welcome and extended lab tour	UNINOVA labs
Day #1, Afternoon	Design and simulation	NANOVA meeting room
Day #2, Morning	Thin film deposition	Clean room, deposition area
Day #2, Afternoon	Micro/Nanopatterning	Clean room, lithography area
Day #3, Morning	Electrical characterization, TFTs and circuits	Electrical characterization laboratory
Day #3, Afternoon	Failure analysis, SEM/FIB	Electron microscopy laboratory

To apply, please fill the form on the dedicated RAP website page:
https://infrachip.eu/research-accelerator-programme

In case of troubles, please contact us – contact@infrachip.fr