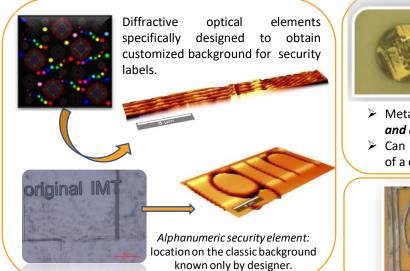
## FIT-4-NMP

FIT-4-NMP Networking and Brokerage Event



organized by FIT-4-NMP H2020 project at the 45<sup>th</sup> International Semiconductor Conference - CAS 2022

# Combined technologies for the development of new generation smart anti-counterfeit tags





- Metal security microparticles with *holographic information* and alphanumeric code.
- Can be immersed in paints or integrated in the background of a classic *anti-counterfeit labels*.



RFID element (antenna and symmetric attenuation network): integrated with the label helps monitorization of the product on the supply chain.

### Short description of Laboratory:

Mission: Research, development and education in micro and nanophotonics

#### Research domains:

- Modelling, simulation and CAD of micro and nano-photonic structures (Optoelectronic devices and photonic integrated circuits; Plasmonics; Micro-optics and diffractive optical elements; OMEMS).
- Optical and electrical characterization of materials and devices:

New materials for micro-nanophotonics (hybrid nano-composites with controlled optical properties, transparent semiconducting oxides, Graphene, quantum dots) and new processes and devices. Micro-nano photonics components (photodetectors, photonic integrated circuits, metasurfaces, plasmonic structures, DOE, optical components); Organic optoelectronics (devices based on graphene-polymer nanocomposites) and quantum technologies.

#### • Applications:

\* Optical sensors (gas sensors based on composite nanomaterials/metasurfaces, fluorescent biosensors) \* Security elements for anti-counterfeit protection and logistic monitoring (holographic labels with extra security nanoelements, RFID elements and temperature sensor); \* Free space optical communications, \* Beam shaping.

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Topic of interest: new generation security labels, new materials for micro-nanophotonics, new processes and devices; micro-nano photonics components for various applications

Potential contribution: design, modeling, simulation, fabrication, characterization of photonic and optical components



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