

## Press release: QUANTIMONY supports the training of fourteen early stage researchers in semiconductor sciences

The research focus of the new EU doctoral programme QUANTIMONY is on semiconductor materials and devices containing antimony for optoelectronic, datacomms and energy applications as well as future quantum semiconductor technologies

**October XX, 2021** – QUANTIMONY, the **Innovative Doctoral Training Network in Quantum Semiconductor Technologies exploiting Antimony**, has started, providing high-level training to fourteen early-stage researchers (ESRs) from twelve nationalities covering scientific and engineering aspects that include compound semiconductor and device simulation, material growth and structural characterisation, device fabrication and testing, through to industrial exploitation. QUANTIMONY is configured as a multi-site network comprising eleven internationally renowned research teams as beneficiaries: seven universities, one research institute, two large corporations and one SME. It is supported by thirteen partner organizations, seven of which are industrial, three are large-scale research facilities and three are internationally leading academic groups. The combined consortium spans eleven countries: eight European, plus USA, Taiwan and Brazil.

The beneficiaries and partner organizations are: Agencia Estatal Consejo Superior de Investigaciones Científicas (ES), Universidad Politécnica de Madrid (ES), Lancaster University (UK), University of Warwick (UK), Eindhoven University of Technology (NL), Technical University Berlin (DE), University of Würzburg (DE), University of Rome “Tor Vergata” (IT), AIXTRON SE (DE), IQE plc (UK), nextnano GmbH (DE), nextnano Lab SAS (FR), Bruker AXS (DE), Nanoplus GmbH (DE), Lancaster Materials Analysis td (UK), TiberLab Srl (IT), QuantCAD LLC (USA), Fluxim AG (HL), Lund University (SE), European Synchrotron Radiation Facility (FR), National Synchrotron Radiation Research Center (TW), Cardiff University (UK), Universidad de Cádiz (ES), Universidade Federal de São Carlos (BR), Technical University Munich (DE).

With a focus on training, QUANTIMONY launched on April a global recruitment process for fourteen ESR positions, receiving 348 candidatures from 56 countries, with 29.3% female. The selected candidates, coming from twelve different nationalities, are already working towards their PhDs, with specific focus on the semiconductor industry and its downstream industries.

QUANTIMONY is funded under the Marie Skłodowska-Curie programme and was launched in December 2020, with an end date of November 2024.

## A focus on compound semiconductor components using antimony

QUANTIMONY concerns the development of new quantum materials and devices containing the element antimony for the semiconductor industry, with a wide application spectrum in the fields of **electronics and optoelectronics for data computing and storage, telecommunications and quantum telecoms, energy harvesting and environmental monitoring**, with consequent impact on **transport, healthcare, aerospace, defence and security**.

The new materials and devices will be exploited in optoelectronic applications such as LEDs, lasers and detectors operating in the infrared spectral range as well as in electronic applications utilizing their unique properties. The development of single photon sources, spin-photon interfaces and third generation solar cells is also envisaged.

Via QUANTIMONY, antimony (Sb) compounds shall find a path to volume production in industrial reactors, for use in computers and memories, telecommunications, automobiles, robotics and many other applications beyond those that are already served in aerospace and security.

Dr. Benito Alén, researcher at the Instituto de Micro and NanoTecnología and Coordinator of the QUANTIMONY project said, “Quantum semiconductor technologies based on antimony are an important field of the future. The possible uses are extremely exciting. The research work of these doctoral students within the framework of QUANTIMONY will make a decisive contribution to accelerating the necessary research and development work for this future technology. The results will enable quantum driven solutions for the next generation of semiconductor components for data storage, energy harvesting and communication technologies.”

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