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**Partner search**

**Date (DD-MM-YY)**

* **(\*) Indicate numbers of relevant topics for Green Deal call:**

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| LC-GD-1.1  LC-GD-1.2  LC-GD-2.1  LC-GD-2.2  LC-GD-3.1  LC-GD-4.1  LC-GD-8.1  LC-GD-9.1  LC-GD-9.3  LC-GD-11.1 |

* **Quick description of the project**

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| The i3N-UA is interested in projects involving:   * Development of innovative technologies in energy storage, conversion and harvesting (including photovoltaics and (photo)catalysis), resistive switching, sensing, and water remediation; * Complex systems and networks, big data, and artificial intelligence technologies. |

* **(\*) Do you intend to apply as ? :**

**Coordinator: No**

**Participant: Yes**

**(\*) Either Description of the expertise requested (up to 1000 characters) - *specify which points of the "expected impact" of the call you are targeting***

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| **Xxxxxxxxx**  **+ key words :** |

**Or Description of the expertise proposed (up to 1000 characters) - *specify which points of the "expected impact" of the call you are targeting***

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| i3N-UA has extensive expertise in the development of materials (bulk, thin-films, and nanostructures) relevant for the Call:   * Materials for low-cost and high-efficiency photovoltaics, energy harvesting, and (photo)catalysts; * Gas/chemical, nanoparticle, environmental, physiological, and light sensing; * Vibration and magnetic field sensing; * High-performance Li-battery and super capacitor energy storage applications; * Highly porous nanomaterials for removal of persistent, mobile and harmful chemicals from water.   The facilities include device fabrication and testing, advanced material synthesis/growth (e.g. CVD, thermal evaporation, e-beam deposition, laser assisted flow deposition, PLD), and characterization (structural, optical, electrical, magnetic, magnetoelectric).  We have also access to high performance computing facilities to allow the prediction of material/device behavior through modelling/simulation and the understanding of complex systems that have multiple interacting simple components, and in-house developed new artificial intelligence methods for data mining applications and for anomaly detection tasks.  **+key words: photovoltaics; (photo)catalysts; energy storage and conversion; sensing; water remediation; complex systems and networks; big data; artificial intelligence** |

**Organisation information**

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| **Organisation and country:**  Institute for Nanostructures, Nanomodelling and Nanofabrication (i3N), University of Aveiro (UA), Portugal |
| **Type of organisation:**  **□ Enterprise □ SME X Academic X Research institute □ Public Body □ Other: Association** |
| **Former participation in FP European projects?**  **X Yes □ No** |
| **Web address:**  <https://www.i3n.org/> |
| **Description of the organisation:**  The i3N-Institute for Nanostructures, Nanomodelling and Nanofabrication is an Associated Laboratory with two branches located at the University of Aveiro (UA) and New University of Lisbon. The main objectives of i3N are to advance the discovery, innovation, development and deployment in the multidisciplinary area of nanotechnologies and advanced functional materials, for a broad range of crosscutting fields, to enhance the quality of life and to achieve sustained economic benefits, in line with Horizon 2020 and Horizon Europe programs.  To accelerate progress, a multidisciplinary approach is fostered, involving materials engineering sciences, chemistry, physics, electronics engineering, theoretical and computational modelling and biological sciences. The i3N experience and multidisciplinary knowledge covers vast scientific areas namely, electronic and opto-electronic materials, microelectronics, devices, nanosystems, nanosensores and actuators, composites and multi-scale modelling, with direct application in the fields of ICT, energy, automotive, aeronautical, health, environment etc.  i3N integrates over 200 researchers of various nationalities. The high quality of the team and of its R&D + i work was recognized in the recent FCT (Nacional Science Foundation) research assessment that ranked i3N within the top Portuguese Institutes evaluated as Excellent.  The i3N-UA has consolidated experience of innovative work in various areas of experimental and theoretical physics, such as the preparation and characterization of advanced materials of different dimensionality, micro- and nano-structured, and in the development of novel devices for applications in the areas of electronics and optoelectronics (e.g. photovoltaics, light-emitting diodes and photo-sensors), photonics, sustainable energy applications and bio-medical. We aim to achieve a deep understanding of the physical properties (optical, electric, magnetic) relevant to the behaviour of the materials and their intended applications and develop new devices. i3N-UA has also very strong expertise in the dynamics of complex systems and networks; optics and sensors; radiation detectors and imaging.  The i3N-UA is also a frequent participant in international projects; recent and ongoing (selected) examples are H2020 SPINMULTIFILM (magnetic sensors and MRAMs), NATO SPS 985215 ESicure (borders and ports security engineering), POCI 2020 FIBR3D (thermoplastic processes), POCI 2020 ORAIDEA (multifunctional dental implants), PO Centro 2020 iPET (preclinical imaging), POCI 2020 GNESIS (functional graphene), POCI 2020 NASIB (wide-gap semiconductors), POCI 2020 NANOBIOSENSE (biosensors), PO Centro AROMA (fibre optic sensors), POCI 2020 DRIM-PET (tomography), QUANTDYN (quantum technology). |

**(\*) Contact details**

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**(\*) –Mandatory**