

UT Austin Portugal | 2019 Strategic Research Projects

NANOTECHNOLOGIES

GEMIS

Graphene-enhanced Electro-Magnetic interference Shielding

Electromagnetic interference (EMI) is considered a potential and major source of operating problems to electronic devices, as well as a cause of performance and lifetime reduction, especially in a world where electronic devices are increasingly ubiquitous. GEMIS aims to develop an advanced technological solution based on graphene liquid dispersions to address the issue of electromagnetic interference.

Keywords: Graphene, EMI, shielding, coatings, nanomaterial



Start Date: 00/00/0000

Duration: 36 months

Operation Code:45939

Main challenge/problem the project seeks to address

Current shielding materials used to protect electronic devices from EMI are based on heavy, brittle and expensive metals. Major EMI applications have a huge demand for flexible, additive, light, and inexpensive materials, though. Attending to these needs is of crucial importance for several vehicles industries, from hybrid and electrical cars to airplanes, where weight reduction is imperative to increase autonomy and reduce carbon footprint.

Proposed solution

The project proposes the development of a universal formulation for a liquid dispersion of graphene materials with highly effective EMI shielding, and the consequent production of two EMI shielding composites based on polymers and epoxies.

Finally, a custom-made equipment will be designed and fabricated to specifically apply the developed EMI shielding solutions on electric wires to be used in the automotive industry.

Innovative Potential

GEMIS' envisioned solutions are highly innovative in the combat against electromagnetic interference, which can disrupt circuits and cause devices to fail. Graphene and related materials are considered the most promising and effective candidates for effective EMI shielding due to their excellent electrical properties, extremely high specific surface area, and unprecedented strength to weight ratio.

Target beneficiaries

Industrial markets such as electronics (IT and sensors), telecommunication (space), transportation (aviation and naval sectors), and the Internet of Things market.

Consortium

PORTUGAL

Graphenest, S.A. (Lead Beneficiary)

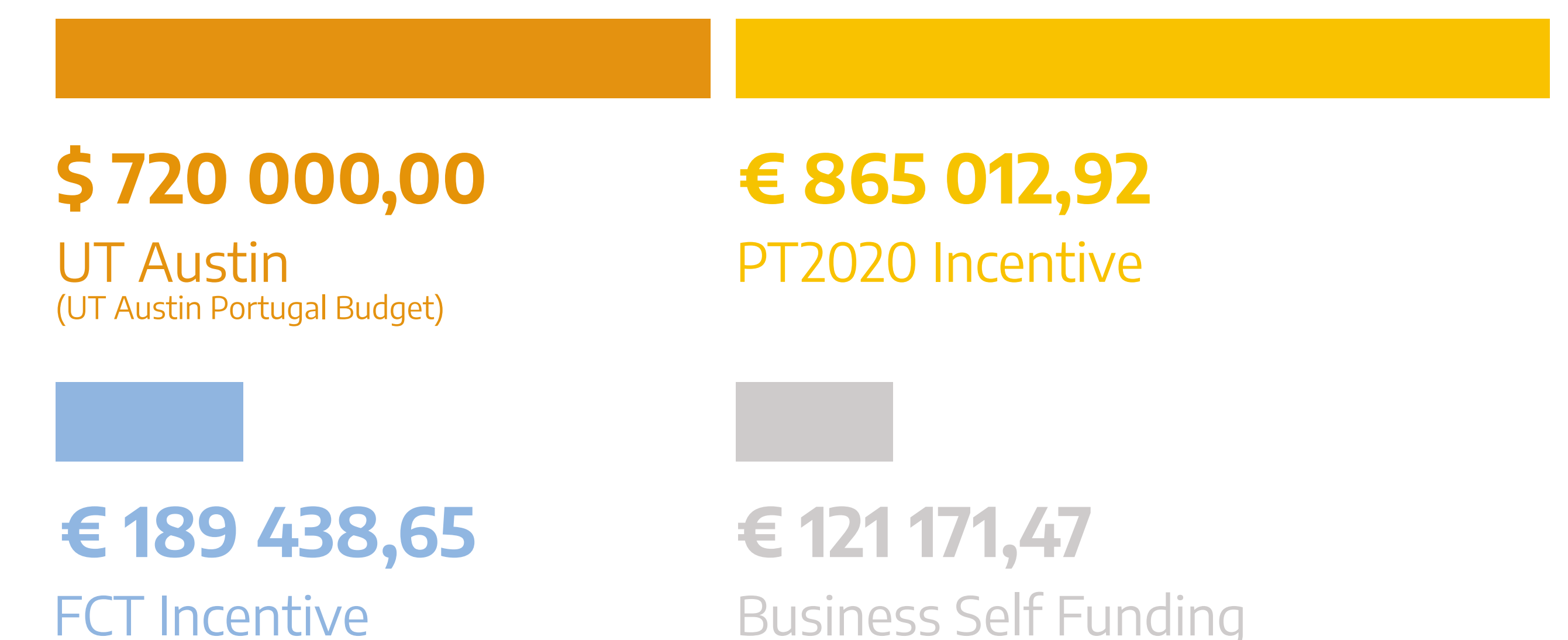
International Iberian Nanotechnology Laboratory (INL)
University of Minho

USA - UT AUSTIN'S PRINCIPAL INVESTIGATORS

Deji Akinwande (Cockrell School of Engineering)

Brian Korgel (Cockrell School of Engineering)

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