

Research Project

Graphene flagship WP2 Core 2

Third-party funded project

Project title Graphene flagship WP2 Core 2

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Organisation / Research unit

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Department

Project start 01.04.2018

Probable end 31.03.2020

Status Completed

The PI is part of WP2 on Spintronics in Graphene:

WP2 in CORE2 targets the demonstration of the technological potential of graphene and related two-dimensional materials for spintronic applications, including the concept of spin-based field effect transistors (spin-FET) and technologies based on spin-torque mechanisms including nano oscillators (commercial products developed by the SME NanOsc), innovative memory (spin transfer torque MRAM and spin orbit torque MRAM) and spin logic components.

The WP will be structured around 3 tasks, including a device-oriented task of optimization and upscaling of the demonstrators developed by the consortium (task 2.1), a full task on the fabrication, characterization and optimization of spin torque based nano oscillators (task 2.2) driven by the SME NanOsc and supported by engineering developments at CUT, ICN2, and IMEC together with simulation support by CEA, UCL and ICN2, and a more exploratory research task (task 2.3) led by RUG, in which new materials, interfaces (graphene/transition metal dichalcogenides (TMDC), graphene/topological insulators) and heterostructures will be investigated for their potential in opto(spín)electronics, spin filtering (achieving large TMR) or spin-torque physics. All three tasks are divided in subtasks led by one partner and associating others for targeted objectives.

WP2 will also increase collaborations with other WPs (WP3 and WP10) concerning the enhancement of the spin-orbit coupling on graphene devices by various ways and the clarification of spin lifetime tunability by spin orbit coupling (SOC)-proximity effects (with WP3) and the fabrication of clean 2D materials-based heterostructures and their technology integration in core blocks of spintronic devices in a fab environment (WP3 and WP10).

Financed by

Commission of the European Union

Add publication

Add documents

Specify cooperation partners