



## Projet H2020 – MAGENTA

Nom du projet	MAGnetic nanoparticle based liquid ENergy materials for Thermoelectric device Applications
Call	FETPROACT-2016 (FETPROACT-01-2016)
Référence UE	731976
Type de projet	Research and Innovation Action (RIA)
Rôle de la HES-SO	Participant
Chercheur impliqué	Herbert Keppner (HE-ARC Ingénierie)
Participants	COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (France) - Coordinateur ; CONSIGLIO NAZIONALE DELLE RICERCHE (IT) ; CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE (FR) NATIONAL CENTER FOR SCIENTIFIC RESEARCH "DEMOKRITOS" (EL) SOLVIONIC SA (FR) C-TECH INNOVATION LIMITED (UK) ; CENTRO RICERCHE FIAT SCPA (IT) ; Gemmate Technologies s.r.l. (IT) HAUTE ECOLE SPECIALISEE DE SUISSE OCCIDENTALE (CH) ; POLITECHNIKA GDANSKA (PL).
Budget global	4,999,779 € / financement UE : 4,999,779 €
Durée	48 mois, début le 01.01.2017
Résumé	MAGENTA proposes a brand new technological path in thermoelectric materials research for waste-heat recovery applications. The originality of the project is based on the newly discovered thermal-to-electric energy conversion capacity of ionic-liquids and ferrofluids; i.e., colloidal dispersions of magnetic nanoparticles in ionic liquids (IL-FFs). It is an inter-disciplinary and cross-sector R&D project combining concepts and techniques from physics, chemistry and electrochemistry with an active participation from 3 SME and 1 industrial partners implicated in the materials supply-chain, the device design/performance and the market-uptake assessment. Both experimental and theoretical approaches will be employed to build foundational knowledge on novel magneto-thermoelectric phenomena in ferrofluids. Computational simulations will allow 'bottom-up' construction of IL-FFs with optimal conditions for harvesting energy. The end-products of MAGENTA, application specific magnetothermoelectric materials and devices, will provide innovation leadership to European companies in waste-heat recovery industries. The lead-user industries targeted by MAGENTA are automobile and microelectronic sectors, but demonstration-type thermoelectric generators will also be produced for public outreach actions on waste-heat recovery technologies. Through its foundational, interdisciplinary and cross-sector research & innovation actions, the consortium will become a "seed community" for building an innovation ecosystem



around the novel magneto-thermoelectric technology, presenting long-term impacts on future renewal energy science and technology from which the society as a whole can benefit. Withal, MAGENTA offers breakthrough thermoelectric materials that are versatile, cost-effective and non-toxic to assist the economically and environmentally sustainable energy transition in Europe

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<https://www.magenta-h2020.eu/>