



UNIVERSITY:

Universidad Pública de Navarra (UPNA)

WIT AREA:

Automotive, Mechatronics and Advance Manufacture

Health

Energy

IA

WIT PROGRAMME'S RESEARCH LINE NAME:

Multifunctional magnetic sensors for automotive and mechatronic applications

DOCTORAL PROGRAMME:

Doctorate in Science and Industrial Technologies (UPNA):

<https://www.unavarra.es/escuela-doctorado/doctorate-programs/current-plan/science/doctorate-in-science-and-industrial-technologies?languageld=1>

COMPLETE DESCRIPTION OF THE LINE

The research line proposes the development of multifunctional magnetic sensors for automotive and mechatronic applications. Such multifunctional devices are based on the ability to simultaneously detect several physical or chemical magnitudes. In particular, non-contact position, guidance (Earth's magnetic field), liquid level or stress sensors are proposed among others. Gas (VOCs, carbon monoxide, nitrogen oxides) and humidity sensing will provide the multifunctional performance to the designed devices. Particularly, low-cost



procedures as 3D printing or spin-coating will be mainly used and the fabrication of optimized magnetic composites (i.e. Co_3O_4 , NiO, Fe@C/TiO₂, ZnO) specifically addressed. The combination of the magnetic composites with soft magnetic materials obtained through low-cost rapid quenching fabrication techniques (ribbons and wires) will enlarge the versatility of the detection elements.

RESEARCH GROUP NAME:

Physical properties and applications of materials (Propiedades físicas y aplicaciones de materiales)

COORDINATOR:

- Last and first name; link to the “Portal of scientific production”:

Gómez Polo, Cristina

(https://academicos.unavarra.es/CawDOS//jsf/seleccionActividades/seleccionActividades.jsf?id_pers=1783&idioma=es&elmeucv=N)

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MEMBERS OF THE LINE RESEARCH:

Cristina Gómez Polo

Juan Jesús Beato López

José Ignacio Pérez de Landazábal

Eneko Garaio Urabaien



ANOTHER RESEARCH LINES OF THE GROUP

Other research lines within the WIT Fellowship Programme in progress in the group:

- Development and manufacturing of multi-source energy harvesting systems
 - Additive manufacturing and 3D printing for the automotive industry
 - Development of advanced materials and technologies for energy production
- Entities involved in research lines and contact person:
- ✓ Academic entities:
 - Prof. Evangelos Hristoforou
National Technical University of Athens. School of Electrical and Computer Engineering
 - Dr. Paola Tiberto
Istituto Nazionale di Ricerca Metrologica (INRIM), Torino, Italy
 - Dra. Nicoleta Lupu
National Institute of R&D for Technical Physics, Iasi, Romania
 - ✓ Industrial entities
 - Joint supervision of doctoral thesis with international universities or non academic institutions:
 - Brief group overview



The group “Physical properties and applications of materials” belongs to the Science Department and the research Institute for Advanced Materials and Mathematics (INAMAT²) of the Public University of Navarra, UPNA.

The main research lines are devoted to the development of high-quality basic research on the physical properties of new advanced materials and their application in different technological sectors. This activity is developed by a mixture of experienced seniors and young researchers, sharing a multidisciplinary environment with other research groups of different areas (chemistry, engineering and mathematics).

The main information about the research activities of the group are available at: <http://www.unavarra.es/propiedades-aplicaciones-materiales>.

- Link of the group to the “Portal of scientific production”

<https://academicos.unavarra.es/CawDOS/jsf/seleccionPersonalEstamento/seleccionPersonal.jsf>