

# Position Offered: UNIVERSITY GRADUATE

Project: *Digital twin to support the design and manufacture of functional nanomaterials with applications in biomedicine (nanoML4Med)*

**Technological and scientific fields:** Advanced data analytics, Artificial intelligence, Data analysis and integration, Nanotechnology, New materials, Design of new medicines

**Location:** Cerdanyola, Barcelona, Cataluña, ICMAB (<https://www.icmab.es>)

**Research Group/PI:** NANOMOL-BIO group (<https://nanomol-bio.icmab.es>) / Dr. Imma Ratera

## PROJECT SUMMARY

In this project, the creation of a digital twin is proposed to assist in the design and manufacture of functional nanomaterials for biomedical applications. The work includes (i) the development of advanced artificial intelligence models (statistics, machine learning and deep learning) that allow the extraction of chemical, physical and biological properties and functions contained in a massive data set of complex molecular structures, (ii) the development of the data infrastructure (numerical, text, images, etc.), and (iii) the development of complementary multi-scale molecular simulation models for physical-chemical interpretability. The work will be carried out in collaboration with the Photonic Engineering Group of the University of Cantabria through research and training stays.

## PROFESSIONAL PROFILE

### Minimum requirements:

- BSc or BEng in Data Science, Physics, Software/Telecommunications, Chemistry or a related field. An MSc or MEng in related fields will be positively valued.
- Excellent communication skills, with the ability to collaborate in a multidisciplinary team

### Merits to be considered:

The following will be valued: (i) Advanced level of English, (ii) Organized and proactive person, (iii) Ability to work autonomously.

## WHAT IS OFFERED

Work in a group with recognized experience in the design, production and characterization of molecular and polymeric materials with advanced therapeutic and diagnostic functionality, using sustainable and economically efficient production technologies. In collaboration with experts in data processing based on statistical models and artificial intelligence (machine and deep learning). All of this integrated with a TRAINING PLAN in DIGITAL SKILLS for the person hired with an estimated value of 270 ECTS over 4 years.

### Contract conditions:

Indefinite contract for a University Graduate associated with the Momentum Project of 4 years' duration according to Spanish science law. Gross annual salary (37.000 € - 41.000 €).

**Start of contract: before 31 December 2024**

## PRINCIPAL INVESTIGATOR CONTACT

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