

## PhD Student Position

### Effect of electrical stimulation on neural plasticity

Supported by Comunidad de Madrid/Atracción de Talento Programme (Modalidad 1) \_ 2019-T1/IND-13350

#### Project Summary:

Neural damage is among the leading causes of disability worldwide and, unlike many diseases, treatments for central nervous system do not have a clear clinical pathway and satisfactory outcomes. Applying therapeutic electrical stimulation (ES) by means of advanced biomaterials is considered to be an alternative solution. However, there is still a large knowledge gap in the area of therapeutic ES protocols for recovering neural function. Our goal is to **investigate the effect of therapeutic electrical stimulation on neural plasticity by means of an in vitro system**. Development, characterization and assessment of the function of this in vitro platform is our main objective at this stage.

#### Who we are:

We are a young multidisciplinary research team (**ES4TERM Lab**) at [Instituto de Micro y Nanotecnología \(IMN-CNM\)](#), one of the research units at [Spanish National Research Council \(CSIC\)](#). Our institute provides cutting edge facilities for fabrication and characterization of advanced materials. Our team specialized in the biomedical applications of advanced materials and specifically focuses on developing *in vitro* and *in vivo* solutions for challenges in tissue regeneration and regenerative medicine, based on physical stimulations. Currently, **Dr. Sahba Mobini** is leading a project funded by [Comunidad de Madrid Atracción de Talento Programme, Modalidad 1-](#) (Ref. 2019-T1/IND-1335) to incorporate electrical stimulation to *in vitro* systems for developing therapeutics for neural damage in CNS.

#### Where we are:

IMN-CNM is located in [Technology Park of Madrid \(PTM\)](#) in Tres Cantos, Madrid. Madrid, the second-largest city in the European Union, is a vibrant metropolitan city that is home for plenty of world-class universities, museums, archives, and sport clubs. The student community in Madrid is diverse

and highly international and is one of the most popular choices for international exchange programs in Europe. Tres Cantos is located 20 km north of Madrid and very well connected.

#### What we offer:

- 3 years full time contract (6 months trial period)
- Flexible working hours
- Multidisciplinary environment
- Soft skills training
- International networking opportunities

#### What your tasks will be:

- Studying electrode biomaterials by means of electrochemical, mechanical and *in vitro* assays and analysing data
- Contributing in developing setups and *in vitro* platforms
- Developing computational models based on finite element methods (FEM simulation)
- Presenting data in regular-based meetings, writing reports and manuscripts

#### Job requirements:

- Master of science or equivalent academic degree in: Biomedical Engineering, Electrical Engineering, Biomaterials, or similar
- English language fluency (Qualification B2/C1)
- Experience in:
  - MATLAB, LabVIEW, Origin or similar
  - FEM simulation
  - Electronics and automation

#### Conditions of the employment:

- A standard PhD contract (annual, renewable up to 3 years), with salary of 1.353,84 €/month \*
  - The post is available from 1<sup>st</sup> of April 2021
- \*The salary will be increased 7% at year 3.

#### How to apply?

- Complete the online application [here](#) and follow the instructions there: LINK
- Application deadline is **12<sup>th</sup> February 2021**