Marie Skłodowska-Curie Actions Postdoctoral Fellowships 2021

Supervisor Profile

1. Details of the IMDEA Supervisor

<table>
<thead>
<tr>
<th>Name of Supervisor</th>
<th>Prof. Alberto Bollero</th>
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<tr>
<td>E-mail</td>
<td><a href="mailto:alberto.bollero@imdea.org">alberto.bollero@imdea.org</a></td>
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<tr>
<td>Website</td>
<td><a href="https://nanociencia.imdea.org/division-permanent-magnets-applications">https://nanociencia.imdea.org/division-permanent-magnets-applications</a></td>
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2. Research themes proposed

The Group’s research lines cover nanomagnetism and sustainability and address key societal challenges (energy, transport and health) while contributing to the EU Green Deal objectives to make of Europe the world’s first climate-neutral continent by 2050.

The research themes proposed are the following:

- Development of resource-efficient permanent magnets for electromobility and green energy technologies.
- From the Cosmos to the lab: Artificial synthesis of novel permanent magnet phases found in meteorites with extraordinary magnetic properties.
- Micromagnets for microsurgery applications.
- Additive manufacturing of permanent magnets and magnetic alloys for development of a next generation of efficient devices (from new motors to biocompatible implants).
- 3D-printing of solid oxide fuel cells for a new horizon in energy.

We are seeking for post-doc candidates with:

- A strong research profile in, Physics, Chemistry, Biochemistry Engineering or a related field.
- A publication record in relevant high-quality peer-reviewed scientific journals.
- Experience in a variety of research techniques and methods.
- Excellent organizational and communication skills.
- Ability to work independently and within a team.
3. Brief description of the Research Group

In case of successful application, the researcher will join our Group under the lead of Prof. Alberto Bollero. The Group counts with 13 people (postdocs, PhD students and technicians) and is working on fundamental and applied aspects of permanent magnets and magnetic alloys with use in transport (main focus on electromobility), energy (e.g. renewable energy technologies) and health (e.g. microsurgery) applications in collaboration with top research centers and companies. We are currently working in the framework of 7 international and national projects and industrial contracts, remarking among them:

(i) PASSENGER (EU H2020 Innovation Action; 20 partners’ incl. 14 companies; € 11.3 M Budget; 2021-2025; coordinator: A. Bollero). Topic: Development of pilot plants in Europe for the fabrication of sustainable magnets and integration in electromobility applications.

(ii) COSMAG (M-ERA.NET Project; € 623.000 budget; 2020-2023; coordinator: A. Bollero). Topic: Artificial synthesis of a disruptive permanent magnet phase occurring naturally only in some meteorites.


We want the candidate to be part of the team and contribute with new ideas to make exciting science and contribute to fascinating new technological developments.

4. MSCA Research Area Panels

☑ Chemistry (CHE)  ☐ Environmental Sciences and Geology (ENV)
☐ Social Sciences and Humanities (SOC)  ☐ Life Sciences (LIF)
☐ Economic Sciences (ECO)  ☐ Mathematics (MAT)
☐ Information Science and Engineering (ENG)  ☐ Physics (PHY)