

**Horizon 2020**  
**Marie Skłodowska Curie Actions**  
**PROFILE FORM – Expression of Interest**

<b>Organization Name / Department</b>	Universidad Nacional de Misiones Facultad de Ciencias Exactas Químicas y Naturales Programa de Materiales y Físicoquímica	<b>Organization Short Name</b>	ProMyF - UNaM
<b>Organization Type</b>	<input checked="" type="checkbox"/> University <input type="checkbox"/> Public Research Centre <input type="checkbox"/> Large Scale Enterprise <input type="checkbox"/> Small and Medium Scale Enterprise	<input checked="" type="checkbox"/> Public Body <input checked="" type="checkbox"/> International NGO <input type="checkbox"/> National NGO	
<b>Research Fields</b>	<input type="checkbox"/> Chemistry <b>CHE</b> <input type="checkbox"/> Social and Human Sciences <b>SOC</b> <input type="checkbox"/> Economic Sciences <b>ECO</b> <input checked="" type="checkbox"/> Information Science and Engineering <b>ENG</b> <input checked="" type="checkbox"/> Environment and Geosciences <b>ENV</b> <input type="checkbox"/> Life Sciences <b>LIF</b> <input type="checkbox"/> Mathematics <b>MAT</b> <input type="checkbox"/> Physics <b>PHY</b>	<b><u>Sub-Fields / Keywords:</u></b> <i>Science and Technology of Materials</i> <i>Physicochemistry</i> <i>Metallic materials</i> <i>Oxides</i> <i>Catalytic materials</i> <i>Corrosion</i> <i>Mechanical properties</i> <i>Coatings</i>	
<b>Short Description of the Organization / Department</b>	<p>The aim of the creation of Programa de Materiales y Físicoquímica (ProMyF) was training professionals with a solid and updated base in the field of Materials Science and Technology and Physicochemistry in order to give them the capacity to the use of bibliographic repertoires, documentary archives, databases and extract pertinent information for investigations.</p> <p>Likewise, proceed with a flexible and programmed research design, serving at all times to the objectives of an investigation.</p> <p>Be competent in the use of experimental techniques specific to the discipline, especially those used in research investigation.</p> <p>To know in depth the theoretical developments in the field in which the research will be carried out.</p> <p>To know the most recent debates about theoretical orientations (theoretical-practical) in the discipline and in the line of research in which the program is located.</p> <p>Be competent in the comprehension and systematization, the interrelation and the analysis of the integrated form of data and information of diverse sources.</p> <p>Critically evaluate the results obtained and expose with clarity and conciseness the conclusions of each research, both experts and non-experts in the field, in accordance with the critical canons of the discipline, taking into account the various audiences to which it is addressed.</p> <p>Update and continue the training in an autonomous way, developing an ethical approach in the professional activity.</p> <p>Introduce students to academic research in the areas that involve ProMyF, as well as innovation and work in productive sectors based on the study of different materials and physicochemical techniques used today.</p>		
<b>Previous Related Projects / Research Experience</b>	<ul style="list-style-type: none"> <li>- Aluminum, Zinc and Tin Alloys: Obtained by Directional Solidification and Evaluation of Properties</li> <li>- Study of Passive Films Formed in Alkaline Phosphate on 316 and 316L Stainless Steels</li> <li>- Selection of Materials for the Management of Biofuels Produced in the Province of Misiones</li> <li>- Obtaining, Characterization and Properties of Titanium Alloys for the Replacement of Hard Tissues</li> <li>- Influence of the Solidification Thermal Parameters on the Macro and Microstructure of Zn-Al Alloys and Composites and their Relationship with their Mechanical and Electrochemical Properties</li> <li>- Evaluation of Localized Corrosion Resistance of Iron and Nickel Base Alloys</li> <li>- Evaluation of the Feasibility of Using Bank Scale Reactors Based on Reductive Heterogeneous Photocatalysis with Modified TiO<sub>2</sub> for the Treatment of Effluents of the Misiones Province</li> </ul>		

	<ul style="list-style-type: none"> <li>- Susceptibility to Alloy Corrosion in ClNa Solutions</li> <li>- Characterizations of Defects in Hydrostatic Testing of Boilers with the Acoustic Emission Technique</li> <li>- Synthesis and Characterization of Nanostructured Coatings, Membranes and Templates of Aluminum and Zinc Oxides</li> </ul>
<b>Short Description of the Project idea (if foreseeable)</b>	<p><b>Project Idea # 1: Manufacture of nanostructured electrocatalytic materials</b> Preparation of nanostructured materials of interest in electrocatalysis, based on platinum and other noble metals, for potential technological applications in electrochemical energy conversion, such as batteries for rural areas. The development of this type of materials contributes to the technological advance in relation to obtaining new materials for applications in electrochemical energy conversion systems, such as fuel cells.</p> <p><b>Project Idea # 2: Surface modification of materials</b> Corrosion inhibitor test with thin nanocomposite films designed for use in different applications, such as boilers, open recirculation systems, single pass systems, closed recirculation systems, chemical cleaning of heat transfer surfaces, etc. It will contribute to the advance in the knowledge of the mechanisms of active protection and self-repair of a new generation of organo-inorganic coatings of the sol-gel type, modified by the physical trapping of nano- or micro-containers of a crystalline nature, loaded with inhibitors of environmentally acceptable corrosion. This will search for improve the mechanical resistance to fatigue, wear, fire resistance, and improve durability and dimensional stability.</p>
<b>Related Call</b>	Any MCSA call related to RISE, IF and ITN actions.
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