

University of Milano-Bicocca  
 PhD Course in Chemical, Geological and Environmental Sciences  
**Call for Interest 41<sup>th</sup> cycle – session II – Curriculum Chemical Sciences**

		<b>Supervisor</b>	<b>Carlo Santoro</b>
<b>Title</b>	<b>Electrochemical reactions within hydrogen technologies through novel electrocatalysts and their interactions with the electrolyte</b>		
<p>The candidate will synthesize electrocatalysts free of platinum group metals (PGMs) for a variety of reactions of the technologies related to hydrogen production and conversion at low temperature. These electrocatalysts will be synthesized through green and scalable methods and will include the first row transition metals. The synthesis processes will involve in general, pyrolysis (controlled temperature and atmosphere), sol-gels methods and hydrothermal synthetic processes. Surface chemistry and morphology of the novel materials will undergo detailed characterization. The electrocatalysts synthesized will undergo preliminary electrochemical screening by means of rotating disk electrode (RDE). Their interaction with the electrolytes at different pHs and containing different type of cations and anions will be thoroughly investigated. Eventually, these novel electrocatalysts will be deposited and integrated over a porous transport layer and tested electrochemically in half cell. Candidates with background in materials science and/or physical chemistry and/or electrochemistry are encouraged to apply.</p>			
<b>Supervisor webpage:</b> <a href="https://en.unimib.it/carlo-santoro">https://en.unimib.it/carlo-santoro</a>			
<i>Notes:</i>			