



# PhD in CHIMICA INDUSTRIALE E INGEGNERIA CHIMICA / INDUSTRIAL CHEMISTRY AND CHEMICAL ENGINEERING - 38th cycle

**THEMATIC Research Field: REMEDIATION TECHNOLOGIES FOR PFAS CAPTURE AND  
REMOVAL FROM GROUND WATERS**

**Monthly net income of PhDscholarship (max 36 months)**

**€ 1325.0**

In case of a change of the welfare rates during the three-year period, the amount could be modified.

## Context of the research activity

**Motivation and objectives of the research in this field**

Research will develop an innovative method in order to treat PFAS-contaminated water and to prevent the introduction of PFAS from the metal surface finishing industry in the environment by treating the produced wastewater. The state-of-the-art technologies proposed will contribute to further understand the PFAS concentration on the environment of contaminated areas and will be a starting point for their adoption for water treatment in other industries working with PFAS.

**Methods and techniques that will be developed and used to carry out the research**

The research will be focused on a remediation solution for the reduction of groundwater and aquifer PFAS pollution by utilizing an innovative technology based on functionalized magnetic nanoparticles that will allow the use of treated groundwater in the surface finishing industry and the downstream treatment of wastewater. It consists of the following three pillars:

- i) novel sampling and analytical methodologies for PFAS monitoring;
- ii) remediation approach based on functionalized magnetic nanoparticles and advanced electrochemical oxidation
- iii) treatment of wastewater deriving from the surface finishing industry for PFAS removal and utilization of treated groundwater for the needs of the surface finishing industry.



<b>Educational objectives</b>	<p>The educational aims are:</p> <ol style="list-style-type: none"> <li>1. amplify supported PhD research experience and favour co-operative research experience at possible partners;</li> <li>2. elevate the educational experience by creating a highly-visible center for PFAS remediation technology.</li> </ol>
<b>Job opportunities</b>	<p>The introduction of new materials and process design in remediation technology will implement the number of applications of this approach. Job opportunities for an expert PhD in this field are expected in the private and academic sector.</p>
<b>Composition of the research group</b>	<p>1 Full Professors 1 Associated Professors 3 Assistant Professors 8 PhD Students</p>
<b>Name of the research directors</b>	Prof. Luca Magagnin

<b>Contacts</b>
<p>Telephone: 0223993124 Email: luca.magagnin@polimi.it Web-pages of the research group: <a href="http://www.cmic.polimi.it/en/ricerca/elenco-gruppi-di-ricerca/seelab/">www.cmic.polimi.it/en/ricerca/elenco-gruppi-di-ricerca/seelab/</a></p>

<b>Additional support - Financial aid per PhD student per year (gross amount)</b>	
<b>Housing - Foreign Students</b>	--
<b>Housing - Out-of-town residents (more than 80Km out of Milano)</b>	--

<b>Scholarship Increase for a period abroad</b>	
<b>Amount monthly</b>	662.5 €
<b>By number of months</b>	6

<b>Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information</b>
<p><b>The candidate will have to fill in a mandatory questionnaire in order to close the application.</b></p> <p><b>Educational activities</b> (funding for participation in courses, summer schools, workshops and</p>



conferences) - financial aid per PhD student per year: 1<sup>st</sup> year: around 1.800 euros per student 2<sup>nd</sup> year: around 1.800 euros per student 3<sup>rd</sup> year: around 1.800 euros per student

**Teaching assistantship:** availability of funding in recognition of supporting teaching activities by the PhD student: There are various forms of financial support for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities within the limits allowed by the regulation.