

Politecnico di Milano

PhD in Industrial Chemistry and Chemical Engineering

Research Title:

Diffusion in confined systems: experimental and theoretical approaches

Scholarships and Financial support	
Monthly net income of PhD scholarship (max 36 months)	€ 1.325,00 (In case of a change of the welfare rates during the three-year period, the amount could be slightly modified)
Increase in the scholarship for stays abroad	€566,36 per month, for up to 6 months
Number of scholarships	1
Beginning of PhD	1st November 2020
Deadline for application	May 29, 2020
Context of the research activity	
Motivations and objectives of the research in this field	The project deals with: i) studies of diffusion motion and tortuosity of small molecules/gas in confined systems such as hydrogel polymer matrices using NMR Spectroscopy-based methods, ii) perform analytical simulation to assist the interpretation of experimental data, iii) develop new data analysis approaches, iv) investigation of small molecules-polymer interactions using solid-state NMR.
Methods and techniques that will be developed and used to carry out the research	The methodologies used are principally based on: High Resolution Magic Angle Spinning NMR Spectroscopy for semi-solid sample, or Solid State NMR techniques. Data analysis packages. Theoretical approaches and mathematical models for data interpretation.
Educational objectives	The project's aims are related to the development and optimization of experimental and theoretical approaches to study the translational motion in confined systems, with particular emphasis on: i) drug motion in 3D polymer network for controlled drug delivery, ii) new materials for battery electrodes.
Job opportunities	Due to the novelty and widespread of possible applications ranging from pharma to batteries, the job opportunities are: Academic career, Pharma-companies, Material science research centres
Composition of the research group	1 Full professor 1 Associate professor 2 Post-doctoral fellows 2 PhD candidates

Come fare domanda:

Sul sito del Politecnico di Milano è stato pubblicato il Bando Generale per borse di Dottorato per il 36° ciclo:

<http://www.dottorato.polimi.it/it/entra-al-dottorato/concorso-di-ammissione-e-borse-di-studio/bandi/bando-xxxvi-ciclo-dei-corsi-di-dottorato-20202021.html>

L'intera procedura è online. Il bando è strutturato in due fasi:

Fase 1: inserimento domande per borse generiche (scadenza: 29/05/2020 – ore 14,00 orario italiano)

Dopo la conferma della domanda, entro la medesima scadenza e tramite la stessa procedura, i candidati interessati potranno segnalare la loro volontà di concorrere per una o più borse a tema. I titoli saranno disponibili solo nella fase 2.

Fase 2: per ulteriori eventuali altre borse a tema/interdisciplinari (dal 12/06/2020 ore 10,00 al 16/06/2020 ore 14,00)

ATTENZIONE: per avere la possibilità accedere a queste borse è NECESSARIO che fin da subito nella Fase 1 il candidato abbia manifestato l'interesse per successive borse a tema /interdisciplinari. Altrimenti queste borse non saranno visibili né selezionabili.

How to apply:

The Main Call for Phd Scholarship 36° cycle has been published on the website of Politecnico di Milano:

<http://www.dottorato.polimi.it/en/looking-for-a-phd/call-for-positions-and-scholarships/calls/36th-cycle-phdcall-20202021/index.html>

The procedure is entirely online. The call is organized in two steps:

Step 1: application for generic topics (deadline: 29th May 2020 – 2AM Italian time)

After the confirmation of the application, within the same deadline and by using the same procedure, the candidates can express their interest in further possible specific topics. The specific topics will be available only in the Step 2.

Step 2: application for specific topics (from 12th June – 10AM to 19th June 2020 - 2PM Italian time)

WARNING: to have the possibility to apply for new topic scholarships candidates MUST have selected the interest on further specific topics /interdisciplinary scholarship during Step 1. Otherwise, this scholarships won't be available.