



<b>MATERIALS SCIENCE AND TECHNOLOGY</b>	
<b>Cycle</b>	<b>XXXIV</b>
<b>Coordinator</b>	Prof. Enrico DALCANALE Department of Chemistry, Life Sciences and Environmental Sustainability email: <a href="mailto:enrico.dalcanale@unipr.it">enrico.dalcanale@unipr.it</a>
<b>Duration</b>	3 years
<b>Starting date of the PdD programme</b>	01/11/2018
<b>Partner Institution</b>	<ul style="list-style-type: none"> <li>• The Italian National Research Council (C.N.R.)</li> <li>• Cape Town University (South Africa)</li> </ul>
<b>Partner Institution for University Cooperation Agreements</b>	<ul style="list-style-type: none"> <li>• Kazan University (Russia)</li> <li>• Stockholm University (Sweden)</li> </ul>
<b>Participation with positive results in international calls</b>	<p style="text-align: center;"><b>Progetto UE H2020 – MSCA ITN "Innovative Training Networks" ITN-ETN "LOGIC LAB"</b></p> <ul style="list-style-type: none"> <li>• Excited state engineering of thermally activated delayed fluorescence: environmental effects</li> <li>• From isolated molecules to materials: relaxation of excited states</li> </ul>
<b>Research Topics</b>	
<ul style="list-style-type: none"> <li>• Photovoltaic devices</li> <li>• Functional materials</li> <li>• Strongly correlated systems</li> <li>• Nanodiagnostics</li> <li>• Nanostructured materials</li> <li>• Supramolecular sensors and devices</li> <li>• Semiconductive massive crystals</li> <li>• Low dimensionality semiconductive structures</li> <li>• Self-healing and self-diagnostic polymers</li> <li>• Surface supported molecular materials</li> <li>• Magnetic materials and magneto-refrigeration</li> <li>• Ceramic and composite materials</li> <li>• Materials and devices for memristic devices and for bioelectronics</li> </ul>	
<b>Training Objectives</b>	
<p>The PhD program in Materials Science aims at the preparation of PhDs equipped with strong scientific background and wide research experience in materials science. Enrollment is open to MS laureates in Materials Science, Chemistry, Physics, Industrial Chemistry, Engineering and Biological Sciences. The Board provides a wide range of courses and seminars in different scientific areas, with particular focus on all aspects of materials science (synthesis, characterization, functions and devices). It also offers soft skills courses. The PhD program offers an interdisciplinary preparation through research activity, also in collaboration with foreign Institutions.</p>	



## Admission requirements

Applicants who have one of the following degrees may participate in the selection:

- Laurea specialistica or Laurea magistrale (second cycle degree)
- Laurea Vecchio Ordinamento (degree obtained under the Italian previous regulations);
- an academic Master's degree obtained abroad, comparable to the above mentioned Italian degrees and recognized as suitable for the admission to doctoral programmes.

Undergraduate applicants may also submit applications with the obligation of getting their degree by **October 31<sup>st</sup> 2018**.

## POSITIONS PUT OUT TO COMPETITION

<b>With Scholarship</b>	11
<b>TOTAL</b>	<b>11</b>

## Positions with University Scholarship

N°	Funding entity	Research Topic, if any
4	Scholarship Ministerial funds	---
5	Funded by The Italian National Research Council (C.N.R.)	---

## Position with Scholarship LINKED TO SPECIFIC TOPICS (art. 11 of the Call for applications)

During the Oral Exam, applicants may express their interest in being assigned a scholarship dedicated to a specific research topic to the Examination Board. The Board will express its judgement on eligibility to be assigned the scholarship in consideration of the specific competences, experience and specific aptitudes of the applicants.

N°	Funding entity	BOUND RESEARCH TOPIC
1	Funded by Fondazione IIT – Istituto Italiano di Tecnologia	<ul style="list-style-type: none"><li>• Electron crystallography to explore solid state transformations triggered by electric field</li></ul>
1	Funded by EMILIA ROMAGNA REGION	<ul style="list-style-type: none"><li>• Biologically inspired processes for the development of nanostructured biomaterials in regenerative medicine</li></ul>

## ADMISSION PROCEDURES

**Assessment of QUALIFICATIONS:** up to 60 points  
(a minimum score of 10 points shall be required to be admitted to the Oral Exam)  
**ORAL EXAM:** up to 60 points  
**Minimum score for ELIGIBILITY:** 70/120

<b>Foreign Language</b>	Language the fluency of which shall be assessed during the Oral Exam: <b>ENGLISH.</b> The evaluation of the knowledge of this language will be oral and will consist in translating of a scientific text.
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**Possibility of videoconference for candidates residing or temporarily abroad**  
(the relevant request shall be submitted using the form attached to the competitive examination announcement)

**YES**

THE INTERVIEW MAY BE HELD ALSO IN ENGLISH



## LIST OF QUALIFICATIONS TO BE SUBMITTED AND THEIR ASSESSMENT

### Mandatory documents to be attached to the on-line application

- **ANNEX A** (art. 5 of the Call for Applications)
- Scanned Copy of a **valid identification document** with photo
- **Curriculum Vitae et studiorum** (art. 4 of the Call for Applications)
- **Abstract of the second cycle master's degree thesis.** Undergraduate applicants may submit the draft of the thesis approved by their supervisor (10.000 characters including spaces)
- **Certificates and academic transcript of records for both the Bachelor' and the Master' degrees** containing the following details for each degree held: (art. 4 of the Call for Applications):
  - University that granted the degree
  - Type of degree (first cycle/second cycle/single cycle)
  - Name of the degree programme
  - Date of graduation
  - Final mark
  - List of exams and corresponding scores (academic transcript of records)
  - Translation into Italian or English (only for degrees issued in languages other than Italian or English)

### Further qualifications that may be attached to the application, if in possession of the applicant

(only qualifications attested by a document drawn up in Italian or in English)

- **Final mark of graduation**
- **List of exams and corresponding scores** (academic transcript of records)
- **Statement of Research interest:** Short text – maximum 2 pages – in Italian or in English, aimed at explaining the candidate's reasons to attend the PhD and at describing the specific research interests;
- **Scientific Publications:** Articles and/or reviews in scientific journals with peer reviewing, abstracts of papers or posters presented at conventions or meetings

### EVALUATION CRITERIA

QUALIFICATION	EVALUTATION CRITERIA	POINTS
<b>Curriculum Vitae et studiorum</b>	Including academic career and postgraduate experience, accompanied with a statutory declaration in lieu of the certification of the exams passed with the relevant marks, as well as the final graduation mark	<b>Up to 20 points</b>
<b>Graduation mark</b>	Score related to the final mark: - 110 with honours (magna cum laude): 10 points; - 110: 8 points; - From 105 to 109: 6 points; - From 100 to 104: 4 points; - From 95 to 99: 2 points; - Under 95: 0 points	<b>Up to 10 points</b>
<b>Average of the exam marks</b> (if the candidate will attain the degree no later than 31 October 2018)	Score related to the average of the exam marks: - 30/30: 10 points; - From 28/30 to 29/30: 8 points; - From 26/30 to 27/30: 6 points; - 25/30: 4 points; - 24/30: 2 points; - Under 24/30: 0 points	<b>Up to 10 points</b>



<b>Graduation thesis</b>	Consistency of the Master's Degree thesis with the doctoral programme research topics	<b>Up to 10 points</b>
<b>Statement of Research Interest</b>	Short text – maximum 2 pages – in Italian or in English, aimed at explaining the candidate's reasons to attend the PhD and at describing the specific research interests	<b>Up to 5 points</b>
<b>Scientific Publications</b>	Articles and/or reviews in scientific journals with peer reviewing, abstracts of papers or posters presented at conventions or meetings	<b>Up to 5 points</b>
<b>ORAL EXAMINATION</b>	<b>EVALUATION CRITERIA</b>	<b>POINTS</b>
The ORAL EXAM will focus on the candidate's motivation to attend the PhD, on the description of his specific research interests and on a discussion of the qualifications presented by the candidate.	<ul style="list-style-type: none"><li>○ knowledge of foreign languages: 10 points</li><li>○ general knowledge of issue connected to the Master thesis: 25 points</li><li>○ general knowledge of issues connected to the PhD course: 25 points</li></ul>	<b>Up to 60 points</b>
<b>SCHEDULE OF THE ADMISSION EXAMS</b>		
<b>ORAL EXAM</b>	<b>ORAL EXAM DATE:</b> 19 September 2018 <b>TIME:</b> 09:30am <b>PLACE:</b> Department of Chemistry, Life Sciences and Environmental Sustainability - Chemical Building Parco Area delle Scienze, 27/A – 43124 PARMA - ITALY	
<b>OTHER INFORMATION</b>	For foreign candidates, the admission examinations may be held in English at the candidate's choice.	