




MATERIALS SCIENCE AND TECHNOLOGY	
<b>Cycle</b>	XXXV
<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 PhD program</b>	01/11/2019
<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>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>	
<b>Admission requirements</b>	
<p>Regardless of age and citizenship, applicants holding at least one of the following academic qualifications can apply for admission:</p> <ul style="list-style-type: none"><li>- Laurea specialistica or Laurea magistrale (second cycle master's degree)</li><li>- Laurea Vecchio Ordinamento (degree obtained under the previous Italian regulations);</li><li>- Second cycle Master's degree obtained abroad, equivalent to the above mentioned Italian degrees and recognized as suitable for the admission to doctoral programs</li></ul> <p>Undergraduate applicants may also submit applications with the obligation of getting their degree by <b>October 31<sup>st</sup> 2019</b>.</p>	



POSITIONS PUT OUT TO COMPETITION		
<b>With Scholarship</b>		10
<b>Without Scholarship</b>		2
<b>TOTAL</b>		<b>12</b>
Positions with University Scholarship		
N°	Funding entity	Research Topic* (*Amended by Rector's Decree n. 1758 of 23.07.2019)
3	Scholarship Ministerial funds	<ul style="list-style-type: none"> <li>New ultrarefractory ceramic composites for applications spanning from aerospace to tribology</li> <li>Volatile biomarkers' sensors</li> <li>Hybrid nanosystems for biomedical applications by conjugation of organic compounds to nanostructured materials</li> </ul>
3	Scholarship funded by The Italian National Research Council (C.N.R.)	<ul style="list-style-type: none"> <li>Advanced multifunctional magnetic materials</li> <li>Recovery, regeneration and production of lithium ion batteries</li> <li>Transparent ceramics for optical applications</li> </ul>
Position with Scholarship LINKED TO SPECIFIC TOPICS (art. 11 of the Call for applications)		
<p>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.</p>		
N°	Funding entity	BOUND RESEARCH TOPIC
1	Funded by EMILIA ROMAGNA REGION  <i>The assignment of this scholarship is subject to the declaration of residence or domicile of the beneficiary in Emilia-Romagna</i>	<ul style="list-style-type: none"> <li>Biomimetic composite adhesives for automotive</li> </ul>
2	Funded by the Department of Chemistry, Life Sciences and Environmental Sustainability	<ul style="list-style-type: none"> <li>Hybrid materials for mass spectrometry</li> <li>Optical spectroscopy of molecular functional materials</li> </ul>
1	Cofunded by SABIC Global Technologies B.V. and by Department of Chemistry, Life Sciences and Environmental Sustainability	<ul style="list-style-type: none"> <li>Ionic Multifunctional Polyolefins for Advanced Automotive and Construction Applications</li> </ul>
ADMISSION PROCEDURES		
<p><b>Assessment of QUALIFICATIONS:</b> up to 60 points (a minimum score of 10 points shall be required to be admitted to the Oral Exam)</p> <p><b>ORAL EXAM:</b> up to 60 points</p> <p><b>Minimum score for ELIGIBILITY:</b> 70/120</p>		



<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.	
<b>Possibility of videoconference for candidates residing or temporarily abroad</b> (the relevant request shall be submitted using the form attached to the competitive examination announcement)  THE INTERVIEW MAY BE HELD ALSO IN ENGLISH		<b>YES</b>
<b>LIST OF QUALIFICATIONS TO BE SUBMITTED AND THEIR ASSESSMENT</b>		
<b>Mandatory documents to be attached to the on-line application</b>		
<ul style="list-style-type: none"> <li>– <b>ANNEX A</b> (art. 5 of the Call for Applications)</li> <li>– Scanned Copy of a <b>valid identification document</b> with photo</li> <li>– <b>Curriculum Vitae et studiorum</b> (art. 4 of the Call for Applications)</li> <li>– <b>Abstract of the second cycle master’s degree thesis</b>. Undergraduate applicants may submit the draft of the thesis approved by their supervisor (abstract/draft of the thesis: 10.000 characters including spaces)</li> <li>– <b>Certificates and academic transcript of records for both Bachelor’ and Master’ degrees</b> containing the following details for each degree held: (art. 4 of the Call for Applications):             <ul style="list-style-type: none"> <li>○ University that granted the degree</li> <li>○ Type of degree (first cycle/second cycle/single cycle)</li> <li>○ Name of the degree programme</li> <li>○ Date of graduation</li> <li>○ Final mark</li> <li>○ List of exams and corresponding scores (academic transcript of records)</li> <li>○ Translation into Italian or English (only for degrees issued in languages other than Italian or English)</li> </ul> </li> </ul>		
<b>Further qualifications that may be attached to the application, if in possession of the applicant</b> (only qualifications attested by a document drawn up in Italian or in English)		
<ul style="list-style-type: none"> <li>– <b>Final mark of graduation</b></li> <li>– <b>List of exams and corresponding scores</b> (academic transcript of records)</li> <li>– <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</li> <li>– <b>Scientific Publications:</b> Articles and/or reviews in scientific journals with peer reviewing, abstracts of papers or posters presented at conventions or meetings</li> </ul>		
<b>EVALUATION CRITERIA</b>		
<b>QUALIFICATION</b>	<b>EVALUTATION CRITERIA</b>	<b>POINTS</b>
<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): 20 points - 110: 16 points - From 105 to 109: 12 points - From 100 to 104: 8 points - From 95 to 99: 4 points - Under 95: 0 points	<b>Up to 20 points</b>



<b>Average of the exam marks</b> (if the candidate will attain the degree no later than 31 October 2019)	Score related to the average of the exam marks: - 30/30: 20 points - From 28/30 to 29/30: 16 points - From 26/30 to 27/30: 12 points - 25/30: 8 points - 24/30: 4 points - Under 24/30: 0 points	<b>Up to 20 points</b>
<b>Graduation thesis</b>	Consistency of the Master's Degree thesis with the doctoral program research topics (briefly describe the topics in the curriculum vitae)	<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>DATE</b>	17 September 2019
	<b>TIME</b>	09:30 am
	<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.	