





<b>MATERIALS SCIENCE AND TECHNOLOGY</b>	
<b>CYCLE</b>	<b>XXXVIII</b>
<b>COORDINATOR</b>	Prof. Enrico DALCANALE email: <a href="mailto:enrico.dalcanale@unipr.it">enrico.dalcanale@unipr.it</a> Department of Chemistry, Life Sciences and Environmental Sustainability
<b>DURATION</b>	3 years
<b>STARTING DATE OF THE PHD PROGRAM</b>	01/01/2023
<b>PARTNER INSTITUTION</b>	The Italian National Research Council (C.N.R.)
<b>RESEARCH TOPICS</b> (The candidate <b>MUST mandatorily</b> indicate one research topic in the form ANNEX A)	
<ul style="list-style-type: none"> <li>• Photovoltaic devices</li> <li>• Functional materials</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>• Ceramic and composite materials</li> <li>• Magnetic materials and magneto-refrigeration</li> </ul>	
<b>TRAINING OBJECTIVES</b>	
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.	
<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 program</li> </ul> <p>Undergraduates can also apply for admission to the selection, with the obligation to obtain the degree within the deadline set for enrollment, that is <b>by 21.12.2022</b></p>

<b>POSITION PUT OUT TO COMPETITION*</b> (Modified by Rector Decree n. 2098 of 22.11.2022)	<b>4</b>	With Scholarship	<b>4</b>
		Reserved to holders of scholarship within specific international mobility programs	<b>1</b>
<b>Position with Scholarship LINKED TO SPECIFIC TOPICS (art. 11 of the Competition notice)</b> (Modified by Rector Decree n. 2098 of 22.11.2022)			
During the Oral Exam, applicants may express and/or confirm their interest of being assigned a scholarship linked to a specific research topic. The Examination Board will evaluate their eligibility based on specific competences, experience and specific aptitudes of the applicants.			

N°	Funding entity	BOUND RESEARCH TOPIC
1	<p>PhD scholarship funded within the PNRR research program called "Ecosystem for Sustainable Transition in Emilia-Romagna" related to the notice Innovation Ecosystems - Investment 1.5 "Creation and strengthening of "Innovation Ecosystems", construction of "territorial R&amp;D leaders"" – Notice MUR 3277 of 30/12/2021 - funded by the European Union - NextGenerationEU (Cup Code D93C22000460001)</p> 	<p>Multiscale modeling of molecular functional materials towards optimized organic light emitting diodes (OLED).</p>
1	<p>PhD scholarship funded within the PNRR research program called "Ecosystem for Sustainable Transition in Emilia-Romagna" related to the notice Innovation Ecosystems - Investment 1.5 "Creation and strengthening of "Innovation Ecosystems", construction of "territorial R&amp;D leaders"" – Notice MUR 3277 of 30/12/2021 - funded by the European Union - NextGenerationEU (Cup Code D93C22000460001)</p> 	<p>Multiscale modeling of Multifunctional molecular materials: chiral emitters for OLED and microscopy applications</p>
1	<p>PhD scholarship funded within the PNRR research program called "National Quantum Science and Technology Institute - NQSTI "Extended partnerships Investment 1.3 creation of " related to the notice Partnerships extended to universities, research centers, companies for the financing of basic research projects" - Notice MUR 341 of 15/03/2022 - funded by the European Union – NextGenerationEU (Cup Code D93C22000940001)</p> 	<p>Molecular systems for quantum technologies: relaxation, decoherence, spin and chirality.</p>
1	<p>PhD scholarship funded within the PNRR research program called "National Center for Gene Therapy and Drugs based on RNA Technology". - CN00000041 - Investment 1.4 "Enhancement of Research Facilities and the Creation of R&amp;D "National Champions" on Certain Key Enabling Technologies" – Directorial Decree MUR Prot. n. 1035 del 17/06/2022 funded by the European Union – NextGenerationEU - (Cup Code B83C22002860006)</p> 	<p>Novel nano-platform for the delivery of nucleic acids and cell therapy</p>
<b>Reserved to HOLDERS OF SCHOLARSHIP WITHIN SPECIFIC INTERNATIONAL MOBILITY PROGRAMS</b>		
N°	<b>Agreements/Cooperations/Mobility Programs</b>	
1	Reserved to holders under the PROJECT UE H2020 MSCA-ITN-ETN "NanED" project 956099 ( <i>Supervisor: Dr. Mauro Gemmi</i> )	

<b>ADMISSION PROCEDURES</b>	<p><b>Assessment of QUALIFICATIONS:</b> up to 60 points (a minimum score of 30 points shall be required to be admitted to the Oral Exam) <b>ORAL EXAM:</b> up to 60 points <b>Minimum score for ELIGIBILITY:</b> 70/120</p>
<b>ADMISSION PROCEDURES for positions reserved to holders of scholarship holders within specific international mobility programs</b>	<p><b>Assessment of QUALIFICATIONS:</b> up to 120 points <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>CANDIDATES ADMITTED TO THE ORAL EXAM CAN TAKE IT EITHER IN PRESENCE OR REMOTELY IN AUDIO AND VIDEO TELECONFERENCE</b>		
(Applicants who intend to take the Oral Exam remotely must submit a formal request, using the form attached to the competition notice)		
<b>THE INTERVIEW MAY BE HELD ALSO IN ENGLISH</b>		
<b>LIST OF QUALIFICATIONS TO BE SUBMITTED AND THEIR ASSESSMENT</b>		
<b>MANDATORY DOCUMENTS TO BE ATTACHED TO THE ON-LINE APPLICATION</b>		
<b>ANNEX A</b>	(art. 5 of the Competition notice)	
<b>Identification Document</b>	Scanned Copy of a valid identity document with photo (i.e. identity card, passport)	
<b>Curriculum Vitae et studiorum</b>	No specific CV format is required (see art. 4 of the Competition notice)	
<b>Abstract of degree thesis</b>	Abstract of the second cycle master's degree thesis. Undergraduate applicants must submit the draft of the thesis approved by their supervisor (abstract/draft of the thesis: 10.000 characters including spaces)	
<b>Qualifications</b>	<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 Competition notice): University that granted the degree - Type of degree (first cycle/second cycle/single cycle) Name of the degree program - 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).	
<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)		
<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 program and at describing her/his specific research interests	
<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>Final mark of graduation</b>		
<b>Average of the exam marks</b>	(for candidates enrolled under conditions and who graduate by 21.12.2022)	
<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 by 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 honors (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 21 December 2022)	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 EXAM</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's 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>LIST OF QUALIFICATIONS TO BE SUBMITTED AND THEIR ASSESSMENT</b> Positions reserved to holders of scholarship within specific international mobility programs		
<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 50 points</b>
<b>Graduation mark</b>	Score related to the final mark: - 110 with honors (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>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 30 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 10 points</b>
<b>Pubblicazioni scientifiche</b>	Articles and/or reviews in scientific journals with peer reviewing, abstracts of papers or posters presented at conventions or meetings	<b>Up to 10 points</b>
<b>SCHEDULE OF THE ADMISSION EXAMS</b>		
<b>ORAL EXAM</b>	<b>DATE</b>	5 December 2022
	<b>TIME</b>	02:30 PM (Italian Time)
	<b>PLACE</b>	AULA C CHEMISTRY BUILDING Department of Chemistry, Life Sciences and Environmental Sustainability Parco Area delle Scienze, 17/A – Campus 43124 PARMA - ITALY
<b>OTHER INFORMATION</b>	For foreign candidates, the admission examinations may be held in English at the candidate's choice.	