UNIVERSITÀ
DEGLI STUDI DI TRIESTE

Rettorato e Direzione Generale
Sezione Ricerca e Dottorati
Ripartizione Dottorati

LAST REVISED 22/08/2014

PhD IN NANOTECHNOLOGY

NOTE: This attachment provides only partial information. Exhaustive information, including how to register for the selection, is published in the Admission Announcement posted in the web page http://www2.units.it/dott/en/ **>>** Admission Announcement.

Deadline for online application	**21 August 2014** **11:30 a.m. (ITALIAN TIME)**
Deadline for paying the exam registration (application) fee	**21 August 2014**
Deadline for submitting qualifications and publications plus the form *Integration to the Application*	**29 August 2014** **11:30 a.m. (ITALIAN TIME)**
Deadline for completion of the degree required for admission	**31 October 2014**
Oral examination/interview	**09 September 2014** **09.00 a.m. (ITALIAN TIME)**
Documents required *(for further details see below "Weighting of the qualifications")*	1. Form "Integration to the application"; 2. The following documents: a. detailed *curriculum vitae et studiorum*, with a special focus on pre-PhD activities b. overview of the research work (for the degree thesis or post thesis) c. 2 letters of reference emailed directly by professors/researchers who know the candidate's work to dottorato.nanotecnologie@units.it subject: "Letter of reference concerning NAME SURNAME". The email must be received before midnight (ITALIAN TIME), 29 August 2014 d. a research project on one of the topics listed in the attachment (max 15.000 characters, including spaces) e. a transcript of the exams taken and marks obtained, during the Bachelor and Master's studies

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IN BRIEF		
Lines of research	1	Development of new techniques for the study, manipulation and visualization of nanostructured materials at the nanoscale
	2	Development of sensors for the detection of bio-molecules or compounds present on a very low concentration
	3	Study of the relationship between structure and properties of materials
	4	Synthesis of and engineering of nanostructured materials
	5	Applications of nanotechnology and nanostructured materials for research in the energy sector
	6	Multiscale molecular modeling of nanostructured materials and phenomena of interest with computational simulation techniques and theoretical studies of nanomaterials with ab initio methods
	7	Application of nanotechnology in the medical, pharmaceutical, biomedical and agri-food
Administrative location		University of Trieste
Organizing Department		Department of Physics
Participating Departments		Department of Engineering and Architecture Department of Chemical and Pharmaceutical Sciences Department of Life Sciences Department of Medicine, Surgery and Health Sciences
Duration		3 years
Maximum number of months to be spent abroad by each PhD student		18
Official language		English
Subject Area	*main*	02
	others	03,05,06,09
Macro Research Fields	*main*	02/B
	others	02/A, 03/A; 03/B; 03/C, 03/D; 05/B, 05/E, 06/F, 06/M, 09/D
Scientific Disciplinary Sector	*main*	FIS/03
	others	BIO/06, BIO/10, CHIM/02; CHIM/03; CHIM/06, CHIM/08; FIS/01, ING-IND/22; ING-IND/24; MED/28, MED/44
Domain European Research Council		PE
ERC Panels	*main*	PE3
	others	PE4; PE5; PE8, LS1, LS7, LS9
Erasmus Subject Area Codes	*main*	13.2
	others	06.7, 06.9, 12.3, 12.7, 13.1, 13.3
Information on the codes can be found online at: http://www2.units.it/dott/en/?file=DottBandi.inc **>>** Admission Announcement and relative attachments (…) **>>** "**Labelling**" (file.xls)		

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PLACES, SCHOLARSHIPS, RESEARCH GRANTS AVAILABLE

Total number of places available (excluding R/2 R/3 – see below)		**18**	
without scholarship		**7**	
with scholarship		**11**	**N.B.**: Candidates who accept an earmarked scholarship are committed to the pre-assigned topic.
Scholarships/Research grants available with indication of the code, total number and funding body	M/1	1	University of Trieste (Topic to be chosen among those listed at: http://www.nanotech.units.it, Cycle XXX Research Projects)
	G/2	1	MIUR "Progetto Giovani Ricercatori" Project title *"DNA architectures and fine tuning of plasmonic resonances as protein sensors for injection"*)
	MD/3	1	University of Trieste + Department of Physics funded by CNR-IOM (Project title *"Nanooptomechanical devices for sensing applications"*)
	MD/4	1	University of Trieste + Department of Physics di Interesse Nazionale ai sensi Legge 370 dd. 19/10/1999 funded by Elettra - Sincrotrone Trieste S.C.p.A. funded by the Dpt of Health, "Ricerca Finalizzata e Giovani Ricercatori", project n. GR-2011-02348707 (Project title *"Role of mechanosensing in celi differentiation of aortic valve interstitial cells"*)
	MD/5	1	University of Trieste + Department of Physics di Interesse Nazionale ai sensi Legge 370 dd. 19/10/1999 funded by" Elettra - Sincrotrone Trieste S.C.p.A." funded by the Dpt of Health, Ricerca Finalizzata e Giovani Ricercatori, project n. GR-2011-02348707 (Project title *"Atomic force microscopy (AFM) mechanical stimulation and characterization of living cells"*)
	MD/6	1	University of Trieste + Department of Physics di Interesse Nazionale ai sensi Legge 370 dd. 19/10/1999 funded by Elettra - Sincrotrone Trieste S.C.p.A. funded by "Ministero della Salute, Ricerca Finalizzata e Giovani Ricercatori", project n. GR-2011-02348707 (Project title *"Characterization of the properties of artificial celi membranes with transmembrane proteins grownon nanostructured substrates"*)
	MD/7	1	University of Trieste + Department of Life Sciences (Project title *"Characterization of targeted biocompatibile/biodegradable nanoparticles for the diagnosis and the treatment of rheumatoid arthritis"*)
	MD/8	1	University of Trieste + Department of Life Sciences funded by CRO-Aviano: AIRC 5/000 Special Program, project (12214) "Application of Advanced Nanotechnology in the Development of Cancer Diagnostic Tools" (Project title *"Theranostic nanoparticles in oncology"*)
	D/9	1	Department of Engineering and Architecture funded by Bracco Imaging S.p.a. (Project title *"Environmental impact and process simulation in the production of substances for pharmaceutical industry"*)
	D/10	1	Department of Engineering and Architecture funded by "Fondation Leducq" - Transatlantic Networks of Excellence 2013-14 - Project Molecular genetics, pathogenesis and protein replacement in arrhythmogenic cardiomyopathy (Project title *"Mechanical and biophysical properties of single cells"*)
	D/11	1	Department of Physics funded by Elettra - Sincrotrone Trieste Società S.C.p.A. di Interesse Nazionale ai sensi Legge 370 dd. 19/10/1999 (Project title "Growth, electronic and structural properties of graphene and two-dimensional materials")

Reserved places with scholarships/research grants available for graduates at universities abroad [R/1] with indication of the code, total number and funding body	R/1	0	--
Reserved places with no PhD scholarship provided	R/2	**0**	Scholarships funded by foreign Countries
	R/3	**0**	Scholarships funded by international mobility programmes
PhD students from foreign universities may be admitted with a joint supervision of their thesis			yes
Erasmus Mundus PhD students from foreign universities may be admitted on a joint supervision of their thesis			yes
Erasmus Mundus PhD students from foreign universities may be admitted on international mobility programmes			yes

THE SELECTION PROCEDURE

Academic qualification required: see Announcement: see Announcement (art. 2 - Requirements)		Italian Master's Degree "Laurea Specialistica/Magistrale" or Degree awarded prior to approval of Ministerial Decree D.M. n. 509 of 3 November 1999, updated with D.M. n. 270 of 22 October 2004, n. 270, (or a qualification corresponding to a Master's -second level- degree) An equivalent foreign academic qualification awarded abroad An academic qualification awarded abroad which is considered to be equivalent to the Italian degree that allows the holder to undertake PhD studies for duration, level and area of study	
Deadline for completion of the Degree required for admission		**31 October 2014**	
Assessment criteria		qualifications + oral examination/interview	
Maximum final score (the final score is based on the sum total of marks obtained in the interview plus the points given for qualifications and publications)			100/100
Minimum final score required for eligibility			70/100
Maximum score awarded for qualifications+publications			70/70
Minimum score required for qualifications+publications			50/70
Weighting of the qualifications ***Unless the form "Integration to application" is presented, qualifications and publications cannot be assessed by the Examining Board. The form is available at:*** *http://www2.units.it/dott/en/?file=DottBandi.inc&cod=1010*	a	detailed *curriculum vitae et studiorum*, with a special focus on pre-PhD activities	maximum 15/70
	b	overview of the research work (for the degree thesis or post thesis)	maximum 5/70
	c	2 letters of reference emailed directly by professors/researchers who know the candidate's work to dottorato.nanotecnologie@units.it subject:"Letter of reference concerning NAME SURNAME". The email must be received before midnight (ITALIAN TIME), 29 August 2014	maximum 20/70

	d	a research project on one of the topics listed in the attachment (max 15.000 characters, including spaces)	maximum 20/70
	e	a transcript of the exams taken and marks obtained, during the Bachelor and Master's studies	maximum 10/70
Oral examination/interview score out of – maximum score			30/30
Oral examination/interview score out of – minimum score			20/30
Deadline for submitting qualifications and publications		**29 August 2014**	
Qualifications and publications shall be submitted: *(art. 5.1.4 of the PhD Announcement)*		**- as an** attachment **to the online admission application (upload), deadline 11:30 am Italian time** only for publications that are voluminous or not available in electronic format, as long as they are listed in the form "Integration to application" (digital format preferable): by e-mail (scan documents, file zip max 5 MB) to dottorato.nanotecnologie@units.it. You may send an email to agree on the terms of delivery. The deadline is 29 August 2014 before midnight (ITALIAN TIME).	
Examination schedule	*Oral examination/interview*	**09 September 2014 at 09.00 am (ITALIAN TIME)**, University of Trieste – workshop room ("Sala riunioni"), room 131, 1. floor – Department of Physics – Via Valerio, 2 – TRIESTE	
	Language(s) of the interview	Italian or English	
	Language(s) tested in the oral examination/interview	English	
	CEFR (Common European Framework of Reference for Languages)	C1	
	Videoconference interview	Upon request from the candidate, the interview may be carried out through videoconference, with the same schedule (check 6.2 Admission Announcement)	

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WHO'S WHO	
Chair	Prof. Lucia PASQUATO - Department of Chemical and Pharmaceutical Sciences - University of Trieste – phone N.: 040/558.2406, e-mail lpasquato@units.it
Vice	Prof. Alessandro BARALDI – Department of Physics – University of Trieste – phone N.: 040/375.8719, e-mail baraldi@elettra.eu
Web site	http://www.nanotech.units.it/default.aspx
Learning outcomes	The main objective is to teach researchers to plan, build, characterize and test nanotechnological tools and devices that meet the growing needs of the society in diverse fields of application: the development of new experimental techniques to investigate, process, manipulate and visualize nanostructured materials on a nanometric scale, the development of spectroscopic techniques to detect isolated molecules on nanostructured substrates, the study of the relations between microstructure and the properties of materials and the engineering of nanostructured materials, the synthesis of nanostructures, the applications of nanotechnology to energy-focused research, the multiscale molecular modelling of materials and relevant phenomena through computational simulation techniques, DFT calculations/predictions of nanomaterials properties, human health with particular attention to the study and treatment of tumors and degenerative diseases, nanotechnological applications to medical, pharmacological, biomedical and food-science areas. This is made possible by the availability of top rate facilities and equipments in the University laboratories and in the public and private research bodies partnering with the University, i.e. the International Centre for Genetic Engineering and Biotechnologies (ICGEB), Elettra Sincrotrone Trieste, the Oncological Referral Center in Aviano (CRO), and the Istituto Officina Materiali-CNR TASC Laboratory just to cite a few.
Job placement opportunities	Doctorates from previous years are nearly all employed in industries or research centers Italian and foreign. This usually happens within a few months after graduation, and in some cases immediately after the end of the scholarship. This justifies an excellent employment outlook for recent PhDs in Nanotechnology. In particular, for this PhD course, the employment status of those who have earned the title in the 2010-2012 period is as follows: 85.19% of entries related to the title, 11.11% of entries are not related to the title and 3.70% of non-employed (or information not available).
Main cooperating international Universities and Research Institutions	1 IOM CNR 2 Elettra Sincrotrone Trieste 3 CRO Aviano 4 ICGEB 5 University of Udine