UNIVERSITÀ
DEGLI STUDI DI TRIESTE

Rettorato e Direzione Generale
Sezione Ricerca e Dottorati
Ripartizione Dottorati

LAST REVISED 23/01/2013

DOCTORAL SCHOOL 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/dottorati/ >> Admission Announcement.

Deadline for online application	**17 December 2012 at 11.30 a.m. CET**

GENERAL DESCRIPTION

SUBJECT AREAS COVERED BY THE SCHOOL:
- main area: FIS/03
- other areas: BIO/06, CHIM/03, CHIM/04, CHIM/08, FIS/01, ING-IND/22, ING-INF/01, MED/08, MED/18, MED/28, MED/30, ING-IND/24, FIS/07, CHIM/01, MED/35, BIO/10, BIO/11, BIO/14, FIS/03, AGR/12

RESEARCH FIELDS:
1. applications of nanotechniques to energy-focused research
2. nanotechnological applications to medical, pharmacological and biomedical areas
3. multiscale molecular modelling of materials and relevant phenomena through computational simulation techniques
4. human health with particular attention to the study and treatment of tumors and degenerative diseases
5. synthesis of nanostructures
6. study of the relations between microstructure and the properties of materials and engineering of nanostructured materials
7. development of new experimental techniques to investigate process, manipulate and visualize nanostructured materials on a nanometric scale
8. development of spectroscopic techniques to detect isolated molecules on nanostructured substrates

LOCATION: Trieste
ORGANIZING DEPARTMENT: Dip. di Fisica
PARTICIPATING DEPARTMENTS (UNIVERSITY OF TRIESTE):
- Dipartimento U.C. di Scienze mediche, chirurgiche e della salute
- Dipartimento di Scienze chimiche e farmaceutiche
- Dipartimento di Ingegneria e Architettura
- Dipartimento di Scienze della vita

OTHER PARTICIPATING INSTITUTIONS (Italian):
- Laboratorio Nazionale TASC-IOM CNR
- ICGEB – International Centre for Genetic Engineering and

Biotechnology
- IRCCS Burlo Garofolo
- CRO Aviano
- Sincrotrone Trieste S.C.p.A.

DURATION: 3 years
MAXIMUM NUMBER OF MONTHS TO BE SPENT ABROAD: 12
OFFICIAL LANGUAGE OF THE SCHOOL: English

ADMISSION INFORMATION

NUMBER OF PLACES AVAILABLE: **8**
Amended on 05/12/2012: number of places available has been raised from 3 to 4
Amended on 23/01/2013: number of places available has been raised from 4 to 8
- SCHOLARSHIPS: 4

Amended on 05/12/2012: number of scholarships available has been raised from 3 to 4

FUNDING BODY/IES (preceded by the scholarship code):

- [cod G/4] MIUR "Progetto Giovani Ricercatori" for the action on "Food Research" (Project title *"Exploitation of food in the Mediterranean diet with nutrients enhancement"*).....1
  NOTE: This scholarship does not provide extra funding for eventual periods of study abroad within the duration of the doctorate, unless the organizing Department decides to make these funds available.
- [cod MD/6] Università degli Studi di Trieste + Dip. di Fisica funded by CNR Istituto Officina dei Materiali, AIRC grants (Project title "*Nano electro mechanical resonators for high sensitivity and real time protein detection*") 1
  Amended on 05/12/2012: a new scholarship [code MD/6] has been added
- [cod D/17] Dip. Universitario clinico di Scienze mediche, chirurgiche e della salute funded by I.R.C.C.S. Burlo Garofalo (Project title "*Effects of nanomaterials on foetal and post-natal barriers and evaluations of epigenic toxicity*").....1
- [cod MD/18] Università degli Studi di Trieste + Dip. di Fisica funded by Dip. Scienze Mediche e Biologiche Univ. di Udine funded by AIRC 5x1000 (Project title "*Development of nanodevice to explore cell network in cancer*").....1
  Amended on 03/12/2012: the correct project title is "*Development of nanodevice to explore cell network in cancer*"and not "*Nanotechnology applied to brain studies*"

Candidates who accept an earmarked scholarship are committed to the pre-assigned topic

Candidates have to list (in order of preference) which scholarships they apply for by specifying the corresponding codes in the "QUALIFICATIONS LIST". If extra earmarked scholarships become available after candidates have completed their application, they can modify their preference list within the deadline for receiving certificates.

ACADEMIC QUALIFICATION REQUIRED: see Announcement (art. 1.1 - Requirements)
DEADLINE FOR COMPLETION OF DEGREE: **18.12.2012**
ASSESSMENT CRITERIA: Qualifications

Legge 241/1990 - Responsabile del procedimento: Elena Ferraro

- MAXIMUM FINAL SCORE: 100/100
  MINIMUM FINAL SCORE REQUIRED: 70/100
  Art. 11 Announcement: all candidates are required to present the following documents, regardless of whether or not a score is assigned to them (see below):
  a. a detailed curriculum vitae et studiorum (including qualifications, degree transcript, certificate of English). The Board will also evaluate the attachment to the cv, eg publications, abstracts, school attendance: max 20/100
  b. a copy of the Master's degree thesis, a summary of the results obtained during the Master's course (or equivalent) and the degree score: max 40/100
     For students with a degree awarded by a non-Italian university, an abstract of the thesis in English or Italian is sufficient.

  as well as

  1. Two letters of presentation from scholars/researchers acquainted with the candidate. Original signatures and institutional letterheads are required: 20/100
  2. A concise research programme in each one of the research fields applied for, among those listed in the general description of the School: 20/100

- Qualifications List (unless this form is presented, qualifications and publications CANNOT be assessed by the Examining Board)

MINIMUM SCORE REQUIRED FOR QUALIFICATIONS/PUBLICATIONS: 70/100
ABSOLUTE DEADLINE FOR RECEIVING CERTIFICATES: **20.12.2012**
ADDRESSES TO WHICH CERTIFICATES SHOULD BE SENT: All documents must be:

- either submitted from 11:00 am to 1:00 pm to: Dipartimento di Fisica - Scuola Dottorato in Nanotecnologie - via A. Valerio, 2 - 34127 TRIESTE – room 128 – first floor – "Servizio Ricerca e Formazione"
  Amended on 03/12/2012: room 128 (not 108)
- or sent by mail with acknowledgement of receipt to the address above. They have to be received **by the deadline at the latest.**
- or else emailed to: segrfisica@ts.infn.it **by 20.12.2012midnight CET** – they have to be duly scanned in pdf and attached to the email with the subject: "Name, Surname, qualifications and publications, Doctorate in Nanotechnology".
  Receipt will be acknowledged by email. If not please request confirmation of receipt.

N.B.: The qualifications and publications submitted may be requested by the candidates (or by proxies carrying a photocopy of the candidate's ID) 60 days after the merit lists have been published. All the remaining documents will be destroyed 120 days after the merit lists have been published.
CEFR LEVEL: C1

CONTACT INFORMATION

DIRECTOR OF THE SCHOOL: Prof. Maurizio FERMEGLIA - Dipartimento di Ingegneria industriale e dell'informazione - Università degli Studi di Trieste - tel. 040/558.3438 fax 040/558.3438 e-mail mauf@dicamp.units.it

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VICE-DIRECTOR: Prof. Alberto MORGANTE – Dipartimento di Fisica - Università degli Studi di Trieste - tel. 040/558.3373 fax 040/558.3350 e-mail morgante@tasc.infm.it

WEB SITE: http://www.nanotech.units.it

SCIENTIFIC PROJECT: The approach is inter-disciplinary: physicists, chemists, biologists, engineers, physicians, pharmacologists, odontologists, biotechnologists and agronomists combine and reinforce their specific competences and skills while developing the ability to carry out their research in synergy and in a wider perspective.

PhD graduates will be professional researchers and technological developers. They will apply their knowledge and their critical evaluation skills to the development of methods to design, produce and evaluate new materials and to improve the existing ones. The target is to make industrial production more efficient, economical and sustainable both in terms of consumption of resources and environmental impact.

EDUCATIONAL AIMS AND RESEARCH TOPICS: The main objective is to teach researchers to plan, build, use and test nanotechnological tools and devices that meet the growing needs of the society in diverse fields of application:

1) the development of new experimental techniques to investigate, process, manipulate and visualize nanostructured materials on a nanometric scale,
2) the development of spectroscopic techniques to detect isolated molecules on nanostructured substrates,
3) the study of the relations between microstructure and the properties of materials and the engineering of nanostructured materials,
4) the synthesis of nanostructures,
5) the applications of nanotechniques to energy-focused research,
6) the multiscale molecular modelling of materials and relevant phenomena through computational simulation techniques,
7) human health with particular attention to the study and treatment of tumors and degenerative diseases,
8) 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 Oncologic Referral Center in Aviano (CRO), and the Advanced Technology and Nanoscience National Laboratory TASC- INFM- CNR just to cite a few.