

ESR 4 Information Sheet

Project title: Integrated optical fiber sensors for intravital monitoring.

Host institution/company: Politecnico di Torino (Italy).

Supervisors

- *Academic:* Prof. Davide Janner, Politecnico di Torino, Department of Applied Science and Technology
- *Industrial:* Dr. Jean Schleipen, PHILIPS N.V.

Type of contract: 36-months full-time research grant within the PHAST-ETN project.

Brief description of the project:

The group at Politecnico di Torino has long-lasting expertise in fiber optics and materials for photonics and sensing. The ESR will study and develop novel distributed fiber-based pressure sensor for the aid in diagnosis of angiogenesis in cancers (in particular, brain tumors) and monitoring. The work will be oriented also to embedding the sensors in endoscopes/arterial catheters for intravital monitor and diagnostics and their validation in phantoms. Standard single mode fibers will be used at first to develop the sensors and at a later stage the use of bioresorbable fibers recently developed by Politecnico di Torino will also be explored.

Planned secondments at **ICFO** (Spain), and **Philips N.V.** (The Netherlands).

Qualifications

Essential

- Applicants should hold or expect to attain, as a minimum an MSc in Electronics, Optical Engineering or Photonics, Physics, Bioengineering or related area.

Knowledge and Experience

Essential

- A demonstrated knowledge of at least two of the following: photonics, electromagnetic fields, optical sensing, lasers, optical fibers, fiber Bragg gratings, bioengineering, data analysis/control of instrumentation.

Desirable

- Research project carried out in at least one of the above disciplines.

Skills and Competencies

Essential

- Applicants whose first language is not English must submit evidence of competency in English, please see Politecnico di Torino language skills required to be enrolled in a PhD Course.
- Evidence of interest, aptitude and research experience in the above disciplines.

Further information

For any informal queries, please contact Prof. Davide Janner by email at davide.janner@polito.it.

POLITECNICO di TORINO REQUIREMENTS FOR PhD CANDIDATES

ADMISSION REQUIREMENTS

Master's Degree recognized valid by PoliTo Doctoral School	<p>M.Sc. degree (i.e. 2° level title, as defined by the Bologna Process), issued by an officially recognized academic institution, which grants admission in PhD programmes in the country of issuance.</p> <p>In order to evaluate the University career, the candidate should provide: Master's Degree and transcript of records of the Master's Degree, Bachelor's Degree and transcript of records of the Bachelor's Degree.</p> <p>The documents shall be issued by the relevant university in one of the following languages: Italian, English, French, Portuguese or Spanish</p> <p><u>To be verified by PoliTo Doctoral School before the interviews.</u></p> <p>The original diploma and transcript should be available by 31st October at the latest</p>
GRE® General Test	Valid GRE certificate to present by the 31 st October
English language certificate	<p>One of the following certificates of English language knowledge, regardless of the date of obtainment:</p> <ul style="list-style-type: none">- IELTS with a minimum score of 5.0;- one of the language certificates recognized equivalent to IELTS 5.0 by the Foreign Languages Centre and detained in the table published at the webpage: https://didattica.polito.it/zxd/b5eda0a74558a342cf659187f06f746f/9dde3c1deee7c791026d6a0ac91322bb/815f4c1f644cb627e050c0828c371966?1549616887585 <p>Or a declaration of having a Ba. and/or M.Sc. degree issued by a University in which courses are taught in English, i.e. "The medium of instruction was English".</p>

PhD REGULATIONS

Start date: 1st November

The candidate should complete the enrolment procedure by 31st October.

For specific requirements of the Project the fellowship may start from the 1st May but the PhD starts on 1st November and finishes after 36 months (counted from 1st November).

Length of the PhD Programme: 3 years (from 1st November 20XX to 31st October 20XX) + **procedure for the final exam** detailed:

https://didattica.polito.it/zxd/cms_data/attachment/30/Modalit%C3%A0%20operative_esame%20finale_ENG.pdf

Minimum stay at Polito in presence: 18 months

Minimum Requirements for getting the PhD title (valid for the academic year 2020/2021):

100 hours of hard skills courses

40 hours of hard skills courses

1 publication

1 Italian exam level A1

Positive evaluation by the Academic Board at the end of each year

According to the PhD Programme these requirements may be increased.

For further details:

https://didattica.polito.it/zxd/cms_data/attachment/30/PhD%20Activities%20Indicator%20Scheme.pdf

<http://dottorato.polito.it/en/legislation>

Taxes to be paid

Around € 1.260,00/year for the entire duration of the PhD Program without possibility of exemption