

Faculty of Science and Technology

Position call: **Senior University Researcher**
Power Electronic Converters, Electrical Machines and
Drives (09/E2 – ING-IND/32)

Position type: **3 year Fixed-term contract / tenure-track**

Profile

The profile of the candidate must fulfil the following criteria:

- **Holder of an equivalent academic position at the candidate's current foreign university – "Direct call from abroad" according to the Italian legislation**
- Postdoctoral research in Electrical Energy Engineering
- Documented excellent performance in teaching
- Research publications in the top journals and the A/A* class conferences (international and national)
- A good command of two of the three teaching languages of the Free University of Bozen-Bolzano (German, Italian and English) is required

Position

The position offered is at Senior University Researcher Level in Power Electronic Converters, Electrical Machines and Drives, and a 3 year fixed-term contract position with a teaching load of 60-120 hours/year in the bachelor and/or master courses.

It is a tenure-track position at Associate Professor level starting from the 4th year on, subject to a positive assessment, to the achievement of the Italian "National Scientific Qualification" (ASN - ex. art.16 of the law 30 December 2010, n.240) and the language certification of the three teaching languages (English, German Italian), two languages at C1 level and one at B2 level.

The working place is at the Bolzano Campus.

The position offers a working opportunity in an international team of experts open to collaborate on innovative and cross-disciplinary projects. Also, various funding possibilities (European, provincial, third sector and internal funds) are at disposal. A multilingual working environment complete the position.

Research directions:

- Efficient energy conversion systems
- Efficient use of electric power
- Interdisciplinary topics¹:

¹ Experts in these areas are already present at the faculty and are eager to take part in a cross-disciplinary exchange

- ⇒ Fluid machinery
- ⇒ Energy systems
- ⇒ Automation

Expected starting date: March 2022

Application procedure

Please send us the documents listed below in hard copy or by e-mail:

- Expression of interest
- Detailed Curriculum Vitae (attachment A – University Academic CV)
- List of publications
- Research statement – Research focus and research projects
- Description of the teaching experience and courses taught, plus final evaluations
- Statement about the current academic position

Application deadline: 31th October 2021

Please note:

- Only applications duly signed and dated on the last page will be accepted and considered as complete
- Only short-listed candidates will be invited for an interview
- The Free University of Bozen-Bolzano aims to increase the proportion of women in research and teaching and therefore strongly encourages female scientists to submit their expression of interest

Free University of Bozen-Bolzano

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More information

Faculty website: <https://www.unibz.it/en/faculties/sciencetechnology/>

Description

Power Electronic Converters, Electrical Machines and Drives (09/E2 – ING-IND/32)

This scientific field deals with the basic and practical use of electrical energy.

It considers components, systems, technologies and materials related to the power production processes (from traditional sources or renewable sources also in distributed generation systems with cogeneration, storage systems, etc.) to transmission, distribution, conversion and use of the electrical energy (in civil, industrial, third sector, services, transportation, etc.).

It further includes all the methodologies related to the electrical engineering and power electronics dealing with the static and dynamic regime of the components of the electrical systems, besides those of the control systems, of the automation processes, of mechatronics, informatics and of the communications.

The research includes problems of electromagnetic compatibility, integration of the components in the systems, and management of the process of the conversion in industrial energy systems, in the transportation and in the service sector; it further, comprises methodological aspects related to reliability, the quality, safety and savings. More specifically, the research and teaching activities focus on converters, machines and electric drives.

This may regard the analysis, design, technological development, characterization, application, and integration of the electric machines, of sensors and electric actuators, the electronic power components and converters, the electric drives, the electrical and electronic materials. Those deal with basic and application problems of the electronic and electro-mechanic conversion enabling an energy efficient exploitation of energy sources (both traditional and renewable). The peculiar constraint for electric power is that of making it available in the form, extent, and quality needed for different industrial applications (automation processes, treatment and processing of materials, handling, etc.), in the electrical or hybrid transportation (terrestrial, marine, airplanes, space) in civil and commercial buildings (lightning, heating, ventilation, air conditioning), in power generation (thermal, hydroelectric, wind, solar cogeneration).

About the Faculty of Science and Technology

We are a young and fast-growing faculty with a strong multidisciplinary and multinational dimension. In our staff we have nationally and internationally recognized experts.

We have a solid network of international collaborations and high-end research facilities, are expanding in many directions and open for new ideas.

New challenges are our daily routine and therefore people who like innovation and strive for top scientific goals are a good match with our culture.

Our main areas of interest are industrial engineering and automation, energy resources and energy efficiency, fundamental sciences for innovative applications, agricultural production and food technologies and dynamics and management of mountain ecosystems.

Those areas are further subdivided into smaller research groups, where scientists work/specialize on some concrete topic of interest.

We teach three bachelor courses, six master courses and four PhD study programs.

We carefully choose our academic personnel by hiring prominent scientists from abroad as guest/contract lecturers or tenured professors. We are a vital part of one of the world's rare universities that offers their students lectures in three languages of tuition, and, upon the conclusion of the study program, a trilingual qualification in English, German and Italian.

Both our students and professors are provided with the support of the Language Centre of the University. It helps them in finding the right method for the study of the language of interest and in achieving the desired level of language proficiency through its courses and language counseling.

Finally, it offers a preparation for internationally recognized language certificates. We further encourage our academics to improve their language skills by incentivizing financially those with B2 and C1 certificates in the second or third language.

We participate in research projects and our work is visible all over the province of Bolzano, as our interdisciplinary and hands-on approach resulted in many fruitful collaborations, with a strong support from the local community. In this context, ideas can be transformed into projects in a matter of months. We firmly believe that our researchers are our greatest asset and a competitive advantage on a market thirsty for innovation: responding to real life problems with the respect for the environment, creating eco-sustainable solutions and using the expertise from many scientific areas in getting a problem solved is what we are committed to.