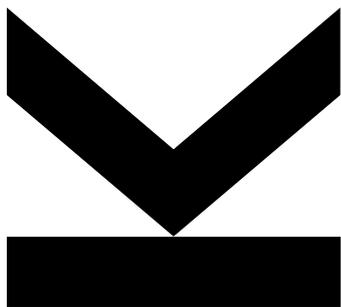


**PROFESSORSHIP FOR  
THEORETICAL PHYSICS**



**INFORMATION FOR APPLICANTS**

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## 1. The Johannes Kepler University Linz (Austria)

The Johannes Kepler University Linz (JKU Linz, <http://www.jku.at>) is a young European university with an expert and accomplished focus on the academic areas of social and economic sciences, law, natural sciences and engineering. The studies of Human Medicine were added in 2014. During its fifty year history, the university has achieved a national and international standing with its manifold achievements in research and teaching. The JKU is a campus-style university located north of the city of Linz. The unique campus environment provides close proximity between all disciplines. Interdisciplinary collaboration, innovative base-knowledge research, and close ties to local businesses and the business community have helped to establish its principal direction. By upholding principles of unity in research and teaching as well as fostering advanced methods of knowledge transfer, the JKU Linz generates and provides services for the greater good of society, the business community, fine arts and culture. Core target groups include students, the scientific community as well as organizations representing private and public life.

As the largest institution of research and education in Upper Austria, and thus as a knowledge transfer center, the university contributes to the continual support and development of Upper Austria as a dynamic economic region. The JKU is also actively involved in competence centers, and has developed spin-off programs that support the establishment of new companies. The JKU's mission statement defines and outlines the university's basic principles for future development and its strategic concept.

A special feature of the university is the campus-style layout and easy access to all four faculties

- Faculty of Social Sciences, Economics & Business
- Faculty of Law
- Faculty of Engineering & Natural Sciences
- Faculty of Medicine

on 350,000 m<sup>2</sup> of land located in a northern section in the city of Linz.

## 2. The Faculty of Engineering & Natural Sciences

The Faculty of Engineering & Natural Sciences is comprised of 58 institutes in the following fields of base-knowledge research as well areas of application-oriented research:

- Chemistry and Polymer Engineering
- Computer Science
- Mathematics
- Mechatronics
- Physics

See: <https://www.jku.at/technisch-naturwissenschaftliche-fakultaet> for detailed information.

### 3. The Department of Physics

The department of Physics consists of the following six institutes, some of which are divided into sub-compartments. Two important fields of the department are the physics of condensed matter and biophysics.

- Institute of Applied Physics
- Institute of Biophysics
  - Applied Experimental Biophysics Division
  - Molecular and Membrane Biophysics Division
- Institute of Experimental Physics
  - Surface Physics Division
  - Soft-Matter Physics Division
- Institute of Semiconductor and Solid State Physics
  - Solid State Physics Division
  - Semiconductor Physics Division
- Institute of Theoretical Physics
  - Theoretical Biophysics Division
  - Many Particle Systems Division
- Center for Surface and Nanoanalytics (ZONA)

### 4. General Requirements for the Professorship of “Theoretical Physics”

#### 4.1. Research

The Johannes Kepler University (JKU) invites applications for a tenured position of a Full Professor at the Institute of Theoretical Physics.

We are looking for a scientist with an outstanding record in the field of theoretical condensed matter physics, in particular computational optoelectronics, photonics and quantum information science. The focus should be on optical, quantum optical, and electronic properties of nanostructures, e.g. semiconductor quantum dots. These studies should include many-particle quantum effects, such as electron-electron and electron-photon interactions. Experience in the development of multiscale approaches that combine theories of different complexity is desirable. Examples of such theories are density matrix theory for the description of the light-matter and dissipative electron-phonon interaction and Maxwell-theory for the propagation of electromagnetic fields. With these tools properties and applications of low-dimensional structures shall be addressed, together with local and international collaboration partners in experimental and theoretical science.

The candidate's application regarding his/her qualifications in research will be considered under the following criteria:

- Outstanding research expertise in the research area described above. The candidate is expected to strengthen and complement the research profile of the Department of Physics
- Venia docendi (Habilitation) or an equivalent scientific qualification
- Excellent scientific reputation, demonstrated by high-ranking publications (please attach a list of publications, as well as reprints or pdf-files of the 5 most relevant publications), invited talks, editorial functions for scientific journals, organization of conferences, etc.
- International experience, demonstrated by longer-term research activities in foreign countries, as well as collaborations with foreign universities and research institutes (please attach respective listings)
- Grant history (please specify type, funding and duration of projects, your function, number of employees in full-time equivalent position in the case of project leadership)
- Intended research projects and possible collaborations within the department of physics in Linz, as well as external collaborations; please attach an outline (up to two pages) of your future research program.

## 4.2. Teaching

JKU is committed to education guided by research. The applicant is expected to offer educational courses in the full range of theoretical physics. This includes lectures for undergraduate physics students, for the master courses Nanoscience and -technology, and Technical Physics, as well as physics courses for other curricula. Supervision and guidance of bachelor/master/PhD theses is of major importance.

Collaborations with foreign universities are desired. Due to the international focus of education at JKU, teaching and lectures should be offered in both English and German.

The following specific criteria will be employed in an assessment of qualifications:

1. Excellence in teaching theoretical physics in its full diversity (please attach a list of courses held so far, and teaching certificates, if applicable)
2. Experience in the supervision of diploma/master and graduate students (please attach listing)

## 4.3. Additional Requirements

The successful applicant is expected to demonstrate strong commitment to collaborations with national and international research groups. Such collaborations lay a foundation for the acquisition of third-party funding, which is a main source for financing scientific research at the Physics Department in Linz. Furthermore, willingness to participate in the administration of the University is expected. In line with the women's advancement scheme, experience in personnel development and the advancement of women,

as well as participation in gender mainstreaming projects, will be also a selection criterion. If available, documentation on these topics should be included.

## **5. Legal Contingencies**

Effective as of January 1, 2004, the structure of Austrian universities has been completely re-organized. They are independently financed on the basis of a three-year service level agreement with the Austrian government, have a global budget at their disposal, and are not subject to any directives by the Austrian Federal Ministry of Science and Research.

### **5.1. Terms of Employment**

All terms of employment, including a university professorship, are subject to the Private Sector Employees Act. A work contract between the university and the appointed professor confirms the professor's appointment. The Salaried Employees Act and the collective agreement for university employees provide the legal framework for all related labor, social, and pension conditions. An evaluation of all teaching and research activities will be conducted after a 5-year period to assess the fulfillment of all target agreements.

### **5.2. Pension Regulations**

#### **5.2.1. Pension**

A pension account at the Pension Insurance Company for Employees (PVA) provides the basis to calculate the amount of pension. All pension account holders are registered for annual partial credits during insurance periods in the amount of 1.78% of the annual contribution basis and these are capped at the maximum assessment basis. The sum of the partial credits is the total credits that are re-valued annually. The total credit divided by 14 equals the amount of gross monthly pension. For more information about the pension you receive directly from the state, please contact the PVA.

#### **5.2.2. Company Pension Fund for University Professors**

In compliance with the Universities Act 2002, a special pension scheme is provided for university professors and has been agreed upon in a Collective Agreement. The contribution payment made by the university is 10% for the set minimum salary as stated in the collective agreement. Voluntary salary payments agreed upon aside from the collective agreement minimum salary are not a part of the base calculation of the contribution payments.

## **6. Salary**

The amount of the minimum salary for Group A 1 (Professorship) has been determined in the collective agreement for university employees and is a gross annual salary of 71.822,80 Euros per year (last

update: 2019). Payment is allocated in 14 equal amounts, whereby two parts are special allocated payments.

The position as Professor for “Theoretical Physics” provides a provision (on a voluntary basis) to agree on a salary over the minimum salary set by the collective agreement.

After a positive evaluation every six years – maximum 4 times in total – there will be an advance to the next pay grade in accordance to the salary bracket in collective agreement for job category A1.

## **7. Application Materials**

Prospective applicants for the professorship position “Theoretical Physics” are requested to send the following application and requested documentation in electronic form to: [application@jku.at](mailto:application@jku.at). If documents cannot be sent in electronic format, they are to be sent in quintuplet copy and should arrive at the Rector’s office no later than one week after the end of the application deadline.

### **7.1. General Information**

- Application Form
- Letter of Intent (1 page)
- Tabular Curriculum Vitae
- Academic Certificates

### **7.2. Research**

- Publication list, including five of the most significant publications in full text
- List of scientific presentations
- List of professional international experience
- List of acquired research funding (function, project volume, contracting party and/or funding organization, duration)
- Presentation of research concepts (maximum 2 pages) for potential activities as a university professor at the JKU (with reference to previous work)

### **7.3. Teaching**

- List of courses taught and, if applicable, results of teaching evaluation and participation in university-level didactic education courses and/or programs if applicable
- List of supervised Bachelor’s, Diploma or Master’s theses and doctoral dissertations

## 7.4. Miscellaneous

- List of previous research cooperation efforts with national and international scientific partners
- List of activities regarding teaching science to non-academic public, schools, etc.
- Qualifications and capability for cooperative leadership, human resource development and advancement of women as well as participation in Gender Mainstreaming projects

## 8. Information

If you have any questions in regard to the job profile, please contact Univ. Prof. Dr. Thomas Renger [thomas.renger@jku.at](mailto:thomas.renger@jku.at), +43 (0)732 2468 5151.