

# **PROFESSORSHIP FOR NUMERICAL ANALYSIS**



# **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 departments 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. The JKU is committed to the principle of unity in research and teaching and fosters advanced methods of knowledge transfer, thereby generating and providing 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 three faculties

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

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

- Faculty of Medicine

is centrally located on the MED Campus in 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

Research at the Faculty of Engineering & Natural Sciences focuses mainly on the following areas:

- Digital Transformation
- Sustainable Development: Responsible Technologies & Management
- Transformation in Finance and Financial Institutions

Academic degree programs in engineering and natural sciences provide hands-on, contemporary education in:

<b>Academic Degree Programs at the Faculty of Engineering &amp; Natural Sciences, 2019W,</b>			
<b>Chemistry and Polymer Engineering Technologies</b>			
033	220	Bachelor's Degree	Polymer Engineering Technologies
	290	Bachelor's Degree	Chemistry and Chemical Technology
	663	Bachelor's Degree	Biological Chemistry
066	296	Master's Degree	Management in Chemical Technologies (MCT)
	479	Master's Degree	Polymer Technologies and Science (PTS)
	480	Master's Degree	Management in Polymer Technologies (MPT)
	491	Master's Degree	Chemistry and Chemical Technology
	497	Master's Degree	Polymer Chemistry
	863	Master's Degree	JMP Biological Chemistry
<b>Computer Sciences</b>			
033	521	Bachelor's Degree	Computer Science
	675	Bachelor's Degree	Bioinformatics
	536	Bachelor's Degree	Artificial Intelligence
066	875	Master's Degree	Bioinformatics
	921	Master's Degree	Computer Science
	993	Master's Degree	Artificial Intelligence
<b>Mathematics</b>			
033	201	Bachelor's Degree	Technical Mathematics
066	402	Master's Degree	Mathematics for Natural/Life Sciences
	403	Master's Degree	Industrial Mathematics
	404	Master's Degree	Computer Mathematics
<b>Mechatronics</b>			
033	281	Bachelor's Degree	Mechatronics
	289	Bachelor's Degree	Electronics and Information Technology
066	481	Master's Degree	Mechatronics
	489	Master's Degree	Electronics and Information Technology
<b>Physics</b>			
033	261	Bachelor's Degree	Technical Physics
	665	Bachelor's Degree	Molecular BioSciences
066	460	Master's Degree	Nanosciences and Technology
	461	Master's Degree	Technical Physics
	470	Master's Degree	Biophysics

	865	Master's Degree	Molecular Biology
<b>Interdisciplinary Degree Programs</b>			
033	320	Bachelor's Degree	Fundamentals of Natural Sciences for Technology (NaSciTec)
	254	Bachelor's Degree	Medical Engineering
<b>Doctorate Degree Programs</b>			
796	600	Doctorate Degree	Natural Sciences
	700	Doctorate Degree	Technical Sciences

### 3. The Department of Mathematics

The **Department of Mathematics** is composed of nine institutes as well as the Doctoral College program "Computational Mathematics". The Department of Mathematics at the JKU consistently emphasizes research in the field of applied mathematics as well as research and teaching in the field of pure mathematics. The department is part of a unique symbiosis and cooperation between various sub-areas in pure and applied mathematics and departments at the JKU are particularly active in exchange, networking, and continuous cooperation. A report by an international commission evaluated the department on behalf of the Austrian Mathematical Society in 2005 and confirmed that the department plays a leading role in the field of applied mathematics in Europe.

The individual institutes of the department are (see: [www.mathematik.jku.at](http://www.mathematik.jku.at) for detailed information):

- Institute of Algebra
- Institute of Analysis
- Institute of Applied Geometry
- Institute of Financial Mathematics and Applied Number Theory
- Institute of Industrial Mathematics
- Institute of Numerical Analysis
- Institute of Stochastics
- Institute for Symbolic Computation (RISC)
- Institute for Knowledge-Based Mathematical Systems (FLLL)
- Doctoral College Program, Computational Mathematics

The Department of Mathematics is, among other things, actively involved in the Johann Radon Institute for Computational and Applied Mathematics (RICAM) of the Austrian Academy of Sciences, in the special research program "Algorithmic and Enumerative Combinatorics", in the special research program "Quasi Monte Carlo Methods: Theory and Applications", in the special research programs "Tomography Across the Scales", as well as in the national research network "Geometry + Simulation". There is a strong emphasis on collaborating with other departments, particularly as part of similar large-scale projects.

## 4. Requirements for the Position “Numerical Analysis”

The position is at the Institute of Computational Mathematics. The successful candidate will be expected to manage the Institute of Numerical Analysis as the head of the institute.

### 4.1. Research

In addition to focusing on research in a current field of numerical methods for partial differential equations, the successful applicant should actively take part in one or more of the university's research foci. The successful candidate is expected to contribute to research and teaching in connection with the departments of Mechatronics and Physics.

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

- Conduct excellent research in a current field of numerical methods for partial differential equations.
- Habilitation (*venia docendi*), or comparable achievements in the area of Mathematics.
- Academic/scientific reputation demonstrated through high-quality publications, academic/scientific lectures and presentations, collaboration efforts in Austria and abroad, activities as an editor and/or reviewer, organization of conferences and related activities, successfully supervising doctoral dissertations
- International experience demonstrated by longer stays abroad as well as collaboration efforts with universities and research facilities abroad.
- Acquire/organize and manage teams and employees involved in research projects.
- Quality of a research concept for a potential position as a Professor of Numerical Analysis at the JKU.

### 4.2. Teaching

The JKU is committed to research-oriented teaching. The successful applicant is expected to offer university-level courses in mathematics as well as courses in his/her area of specialization. The applicant is expected to actively take part in the basic educational programs for degree programs in mathematics as well as teach service courses at the department. In addition, the successful candidate must be willing to play a key role in further developing the curricula in the areas of mathematics at the Faculty of Engineering & Natural Sciences.

Cooperation with universities abroad is desirable. As many programs at the JKU are international, the successful candidate should be proficient in English and able to hold university-level courses and presentations in English. Applicants who have little or no proficiency in German can hold courses in English during the first two years.

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

- The ability to hold mandatory, university-level courses in Mathematics
- Experience in supervising academic theses and dissertations

### **4.3. Additional Requirements**

The successful candidate must be willing to cooperate with the institutes in the departments of mathematics, physics and mechatronics, as well as with other research institutions located at the JKU and/or located in close proximity to the university. In addition, the successful candidate should actively take part in one of the JKU's main research areas and collaborate closely with the Johann Radon Institute for Computational and Applied Mathematics (RICAM). RICAM offers the prospect of leading a working group focusing on developing and analyzing numerical methods for partial differential equations.

The successful candidate must be willing to independently manage academic administration. In accordance with the JKU's "Plan for the Advancement of Women", the successful candidate should be experienced in human resource development and advancement opportunities for women as well as participation in gender mainstreaming projects. Please include corresponding documentation.

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

- Experience in leading research teams

### **4.4. Activities – Significance and Time Span**

The successful candidate will balance research, teaching and (independent) administrative tasks as follows; approximately 40% teaching, 40% research, and 20% for the completion of administrative tasks and institute management responsibilities. The successful candidate is also expected to actively and independently participate in administrative committees.

## **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 2002 Austrian Universities Act, 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 *Numerical Analysis* provides a provision (on a voluntary basis) to agree on a salary exceeding the minimum salary set by the collective agreement.

Following a positive evaluation after every six years – 4 times in total – there will be a progression to the next pay grade in accordance to the salary scale in the collective agreement for job category A1.

## 7. Application

Prospective applicants for the professorship position in *Numerical Analysis* are requested to send the following 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)
- Curriculum Vitae
- Certificates (Doctorate, Habilitation)

## **7.2. Research**

- Publication list, including 5-8 of the publications you consider most important and significant
- List of academic and scientific presentations/lectures you have given as an invited speaker
- Overview of collaboration efforts in Austria and/or abroad, activities as an editor and reviewer, the number of conferences organized and related activities
- List of research projects: function, project titles, project leader, project volume, duration, contracting party and/or funding organization, the number of full-time and part-time employees
- Submit a research concept (max. 1 page) for future activities as the Professor for Numerical Analysis at the JKU

## **7.3. Teaching**

- List of previously held university-level courses and, if available, the student evaluation results
- List of supervised theses and dissertations

## **7.4. Miscellaneous**

- Scientific/academic concept (max. 1 page) to create a working group for numerical methods for partial differential equations at RICAM.

## **8. Information**

If you have any questions in regard to the job profile, please contact Univ. Prof. Dr. Bert Jüttler (+43(732) 2468 4080, [bert.juettler@jku.at](mailto:bert.juettler@jku.at)).