

The Chair of Astrodynamics is offering a

*Opportunities
for Talents*

Academic Position as Postdoctoral Researcher and Group Lead in Astronautical Engineering and Orbital Space Robotics (m/f/d)

About us and the position

At the Chair of Astrodynamics, we advance spaceflight science and engineering through pioneering research, from theory, to experimentation and flight. Our research foci include spaceflight mechanics, orbital robotics and systems engineering for advanced space missions.

This university-funded scientific employee position is for a highly motivated postdoctoral researcher that wants to build up the solid foundation of an academic or group-lead career in Astronautics and Space Engineering, and aims at becoming a leader in the field. The postdoctoral associate will lead a research group, manage a laboratory, and conduct research and teaching in all focus areas of the Chair of Astrodynamics. Those include spaceflight mechanics, with a primary focus on the rotational and orbital maneuvering of artificial satellites, autonomous guidance, navigation, & control, the engineering of advanced space systems and missions, and orbital robotics for in-space servicing, assembly, and debris removal. Broader research interests extend to entrepreneurial innovation, technology transfer, and space-enabled sustainability. The research philosophy at the Chair of Astrodynamics integrates theoretical investigation with simulation, laboratory experimentation, and flight testing.

Your main Responsibilities

- Lead a research group of Ph.D. candidates, Master's students and lab technician toward collaborative research goals
- Lead the development and manage a state-of-the-art laboratory for spaceflight mechanics and control hardware-in-the-loop testing and advanced astrodynamics visualization
- Conduct original and excellence-driven research efforts in all focus areas of the Chair of Astrodynamics, integrating theoretical investigation with simulation, laboratory experimentation, and flight testing
- Publish research findings in reports, high-impact international journals, and present at leading conferences
- Mentor undergraduate, Master's students and Ph.D. candidates
- Continue to develop expertise and stay current with advancements in the Chair's research areas
- Contribute to teaching and examinations for TUM students at the Chair of Astrodynamics
- Proactively execute and manage administrative tasks at the Chair of Astrodynamics
- Contribute to inventions and patent applications
- Initiate and lead grant writing and collaborative proposal development to obtain research funding

Required Skills & Experience

- A Ph.D. with excellent academic results in Aerospace Engineering, Mechanical Engineering, Electrical Engineering, Computer Science, Physics, or a related field at the time of appointment
- Required knowledge
 - Excellent knowledge of spaceflight mechanics, control, orbital robotics, and space systems engineering
 - Excellent mathematical, analytical and problem-solving skills
 - Proficiency or native knowledge of English (written and spoken)
 - Proficiency or native knowledge of German (written and spoken)
 - Proficiency in MATLAB, Python, C/C++, GMAT or similar, 3D modeling tools, project management tools
 - Proven experience in space engineering research integrating simulation, lab and flight experimentation

*Opportunities
for Talents*

- An excellent publication record at the time of appointment
- Required skills
 - Excellent interpersonal communication skills, ability to work in a team and ability to lead a team
 - Exceptional critical thinking, creativity and attention to details
 - High self-motivation, resiliency and persistence in overcoming research and team-leadership challenges
 - Proficient organizational skills, and project management
 - Proven ability to formulate and systematically investigate research questions
 - Strong passion and ability to write archival quality technical papers and documentation
 - Capacity to work independently as well as collaboratively, and to motivate a team
 - Commitment to research excellence and adherence to the highest ethical professional standards
- Advantageous knowledge/skills
 - Prior experience in a leading role
 - Prior experience of research grant writing
 - Good knowledge of the Bavarian, German and European research ecosystem.

What we offer

- Full-time position (100% / 40h, pay grade A13 a.Z., TV-L) with an initial 3-year contract, which in case of exceptional performance may be extended to a permanent position
- Engaging research in a welcoming international team, highly motivated to shape the future of Space
- Stimulating working environment at one of the top technical universities in Europe
- An academic ecosystem fostering entrepreneurial initiatives and the possible creation of spin-off startups
- A large network of peers in the international space business and academia
- The position is based at the TUM Ottobrunn Campus in the vicinity of Munich, Bavaria, Germany
- We value diversity, equity, and inclusion and encourage candidates from underrepresented groups to apply. We are dedicated to offering an inclusive research environment and encourage applicants of all backgrounds to apply, including individuals with disabilities. The position is suitable for persons with disabilities.

Application

Interested candidates should send their application (including motivation letter (max. 1 page), CV in Europass format, also listing nationality/nationalities, list of publications, university transcripts with grades, at least three letters of reference, copy of three journal papers, copy of diplomas or other supporting documents) via email: positions.coa@ed.tum.de (Important: Please attach a single PDF and use the subject: "[your name] for GROUPL-LEAD-COA"). The deadline for the application is: 17 March 2025 (the position will remain open until filled). The aim is for the position to start in Spring 2025. We look forward to your application!

Technische Universität München

TUM School of Engineering and Design
Chair of Astrodynamics

[Prof. Dr. Marcello Romano](mailto:prof.dr.marcello.romano@tum.de)

Lise-Meitner-Str. 9, 85521 Ottobrunn

Data Protection Information:

As part of your application, you provide personal data to the Technical University of Munich (TUM). Please view our privacy policy on collecting and processing personal data in the course of the application process pursuant to Art. 13 of the General Data Protection Regulation of the European Union (GDPR) at <https://portal.mytum.de/kompass/datenschutz/Bewerbung/>. By submitting your application, you confirm to have read and understood the data protection information provided by TUM.