

## Position Description

### Group of research topics: Additive manufacturing of Ti alloys

<b>Position is funded by</b>	<ul style="list-style-type: none"> <li>- COFUND, Marie Skłodowska-Curie Actions (MSCA), Horizon 2020, European Union</li> <li>- University of Kassel (UoK), Germany</li> <li>- RMIT University (RMIT), Australia</li> </ul>
<b>Research Host</b>	University of Kassel (UoK), Germany
<b>PhD awarding institution/s:</b>	Dual PhD awarded by UoK and RMIT
<b>Locations</b>	<ul style="list-style-type: none"> <li>- Primary: Kassel, Germany</li> <li>- Secondary: Melbourne, Australia</li> <li>- Annual workshops in Barcelona, Spain</li> </ul>
<b>Contract</b>	Full time, fixed term (48 months)
<b>Gross annual salary</b>	53 345 € EUR
<b>Preferred start date</b>	1/10/2022
<b>Deadline for applications</b>	30/04/2022 (Reference: UoK-DC1)

### Your choice of research topics (only one of these projects will be funded):

Project 1: Ti-based alloys for biomedical applications	Project 2: Ti-Ta-X shape memory alloys	Project 3: Ti- high entropy alloys
<p>This project deals with additive manufacturing of biomedical Ti alloys. The main focus will be the determination and correlation of process-microstructure-mechanical properties and the characterization of the fatigue properties. <i>Further information may be obtained from the Supervisors.</i></p>	<p>This project deals with additive manufacturing of Ti-based shape memory alloys. The main focus will be the determination and correlation of process-microstructure-functional properties as well as the characterization of the functional fatigue properties in both, heating cooling and superelastic experiments. <i>Further information may be obtained from the Supervisors.</i></p>	<p>The project deals with the in-depth characterization of Ti based high entropy alloys. The deformation and phase transformation characteristics will be analysed by thermomechanical testing and in situ testing. Microstructural investigation will shed light on the microstructural mechanisms leading to failure. <i>Further information may be obtained from the Supervisors.</i></p>
<p><b>Supervisors:</b> <u>Prof. Dr. Ing. Thomas Niendorf, Dr. Ing. Philipp Krooss (UoK) and Dr. Andrey Molotnikov (RMIT)</u></p>		
<p><b>Industry mentor:</b> <u>Markus Weinmann (TANIOBIS)</u></p>		
<p><b>Research Fields:</b> Materials science and engineering</p>		



## REDI

The REDI (RMIT European Doctoral Innovators) program is a unique opportunity offering excellent PhD conditions including enviable international experience, top-class research discipline and transversal skills training as well as networking with-academic and industry leaders across 60+ supporting partners and 11 countries.

As a REDI researcher you will be:

- enrolled by two entities, with the chance to be awarded dual doctorates and gain alumni status from multiple institutions, including the Marie Curie Alumni Association.
- seeing the world and spending a year at RMIT University in Melbourne, Australia (ranked in the top 20 of universities under 50 years old in the world).
- part of a rich multidisciplinary network of researchers and supervisors who come together in annual, week-long training events in Barcelona.
- working closely with industry and gaining experience with the 40+ leading companies supporting the program.
- earning a salary above national standards for doctoral positions with full social security benefits (with further support available for eligible researchers with additional needs).
- receiving support and guidance from two highest-calibre, experienced supervisors with high PhD completion rates.
- enhancing your career prospects through comprehensive technical and transversal skills training from leading institutions, intersectoral and international experience and mentoring.
- working on innovative and exciting projects of high commercial and societal value with up to four years to complete your research.

For more information visit: [rediprogram.eu](http://rediprogram.eu)

## Are you REDI? (Expected Profile)

### Project 1 and 3

**Your background and skills:** You should have a Degree in Mechanical Engineering, Material Science, or similar. Experience in additive manufacturing and in materials characterization – most importantly in fatigue and microstructure analysis of metals is appreciated. Most preferentially: experience gained in Bachelor and Master Thesis, supported by further experience (Lectures, Lab Work, etc.).

**Your work experience:** Professional experience is not required.

**Your research experience:** Research experience is not required.

### Project 2

**Your background and skills:** You should have a Degree in Mechanical Engineering, Material Science, or similar. Experiences in additive manufacturing; in materials characterization (mechanical and microstructural properties) – most importantly in metallic shape memory alloys are appreciated. Most preferentially: experience gained in Bachelor and Master Thesis, supported by further experience (Lectures, Lab Work, etc.).

**Your work experience:** Professional experience is not required.

**Your research experience:** Research experience is not required.



## Employment Benefits and Conditions

UoK offers a 36-month full-time work contract (extendable up to 48 months), indicatively starting on 1/10/2022. The position will be based in Kassel (Germany). International travel is foreseen, including to Australia (up to 12 months) and Spain (one week per year). At UoK there are 40 working hours per week.

The remuneration, in line with the European Commission rules for Marie Skłodowska-Curie grant holders, will consist of a gross annual salary of 53 345 € EUR. Of this amount, the estimated annual net salary to be perceived by the Researcher is 41.500 EUR. However, the definite amount to be received by the Researcher is subject to national tax legislation and will be determined by UoK's human resources department within the monthly salary payments. For more information on the estimated net monthly salary, please use the [net salary calculator](#).

### Benefits include:

- 30 days of paid annual leave
- insurance for work-related accidents,
- pension fund, sick leave and parental leave
- 1,000€ yearly travel allowance to cover flights and accommodation to participate in the annual workshop at RMIT Europe in Barcelona (Spain)
- 10,000€ allowance to cover flights and living expenses for up to 12 months in Australia

For more details, please see:

<https://www.uni-kassel.de/uni/en/forschung/nachwuchsfoerderung/doctorate>

## REDI to apply? First a little more about us...

### UoK

Universität Kassel was founded in 1971. More than 3300 employees, including 300 professors, are working in the University of Kassel. In 2019, 179 doctoral candidates graduated successfully. Currently, 1237 PhD doctoral candidates are registered at Universität Kassel. Universität Kassel is interested in establishing doctoral programs enabling Co-supervision of doctoral candidates in order to promote training and career development as well as to improve job opportunities for young researchers.

UoK university offers to its Doctoral Students a wide range of benefits, including:

- **Mentoring program:** The Graduate Academy of the University of Kassel offers coaching and mentoring services. The Doctoral Candidate will also be supported by the department.
- **Courses and training opportunities:** The UoK provides to its Doctoral Students training courses. For more info, visit: <https://www.uni-kassel.de/einrichtungen/en/graduate-academy/further-education/kassel-graduate-programme/course-offers.html>
- **Language courses:** The language center of the University of Kassel offers a variety of UniCERT language courses, for example Spanish, Chinese or Turkish. A registration is possible each semester.
- **Cultural and social activities:** The team of Welcome Centre of the University of Kassel offers advice and services to all Doctoral Candidates starting from preparations prior to coming to Kassel and getting acquainted with Kassel and the University of Kassel. Also, the team organizes Campus Events to bring Doctoral Candidates from all faculties and all nationalities together.
- **Engagement with industry:** the Doctoral Student will closely work with [TANIOBIS GmbH](#), a well experienced in the production of high quality powder and will support the evaluation of the powder-process-microstructure-mechanical properties relationship. TANIOBIS will cover the initial part being of utmost importance for the final material properties: production, characterisation and assessment of metal powder. Without the specific knowledge provided by the industry partner, such aspects could not be considered in the work.

For more information, visit: <https://www.uni-kassel.de/uni/en/>



## RMIT

RMIT is a global university of technology, design and enterprise, ranked in the top 20 of universities under 50 years old in the world. World-class people, leading edge resources, collaboration with industry partners and multi-disciplinary approaches are just a few of the trademarks of research at RMIT, which boasts almost 90,000 students and campuses in Australia, Vietnam, a centre in Barcelona, Spain and research and industry partners on every continent.

As Doctoral Student at RMIT you will be able to benefit from a wide range of training and mentoring opportunities including:

- **The PhD Up** program offering a huge range of workshops, seminars and short courses to build research knowledge and skills, including research writing, publishing, research methods, ethics, project management and careers (see more at: <https://www.rmit.edu.au/students/student-essentials/information-for/research-candidates/enriching-your-candidature/phd-up-program>)
- **RMIT PhD Online Modules**, designed specifically for PhD students, including *Researching your literature review*, *Writing a research proposal*, *Choosing where to publish*, *Writing for Publication*, *Research Integrity*, etc.
- **RMIT Creds**, RMIT's Digital Credentials Platform, which includes over 80 credentials covering a wide range of topics such as *Understanding Responsible Research and Innovation*, *Academic Integrity Awareness*, *Emotional Intelligence*, *Diversity Matters*, *Agile Ways of Working*, *Why Gender Matters*, *Cross Cultural Communications*, etc. (see more at: <https://www.rmit.edu.au/study-with-us/levels-of-study/short-courses>);
- **The e-Grad School**, the online learning modules of the Australian Technology Network (ATN) of Universities' covering a multitude of transferrable skills such as *Critical and Creative Thinking*, *Leadership and Communication*, *Entrepreneurship*, *Research Commercialisation*, *Public Policy*, etc.
- **The RMIT Mentoring platform** also gives you access to mentoring from trained professionals and experts, including:
  - o *Career Mentoring* - career guidance from industry professionals from all disciplines and global locations.
  - o *Women@RMIT Mentoring* - career guidance from industry professionals who are committed to gender diversity and equality in the workplace (especially for female students in male dominated industries)
  - o *Pride Mentoring* - a chance for students who identify as LGBTIQ+ to receive professional and social guidance from industry professionals who also identify as LGBTIQ+ or are familiar with the additional challenges these groups face in the workforce.

Find out more: [rmit.edu.au](https://www.rmit.edu.au)

## A little more about you...

### Eligibility

**You need to fulfil criteria of the REDI program and both universities to be recruited.**

To apply for REDI, you must comply with the MSCA-COFUND general eligibility criteria:

- **Be in the first four years** (Full-Time Equivalent (FTE) research experience) **of your research career** and not yet have been awarded a doctoral degree. FTE Research Experience is measured from the date when a researcher obtained the degree entitling him/her to embark on a doctorate, **AND**
- **Not have resided or carried out your main activity** (work, studies, etc.) in the country of your research host for more than 12 months in the 3 years immediately before this call's deadline. Time spent as part of a procedure for obtaining refugee status under the Geneva Convention (1951 Refugee Convention and 1967 Protocol), compulsory national service and/or short stays such as holidays is not taken into account.

As well as the following criteria:

- **Hold a four-year bachelor's degree requiring at least 4 years of full-time study** in a discipline relevant to the research project of your choice and awarded with honours, and including a research component; **OR**



- **Hold a master's degree that includes a research component** in a discipline related to the research project of your choice or a master's degree without a research component with at least a high distinction average; **OR**
- **Have evidence of appropriate academic qualifications and/or professional experience** demonstrating that the applicant has developed knowledge of the field of study or cognate field and the potential for research sufficient to undertake the chosen project.

**AND**

- Have **English level C1 language proficiency**.

In addition to the above, if your application is successful, you will be required to:

- Apply for a working/student visa in Germany (More information: <https://www.uni-kassel.de/uni/en/international-service/coming-to-kassel/welcome-centre/before-arrival-preparation/visa>)
- Apply for a student visa in Australia (More information: <https://www.rmit.edu.au/study-with-us/international-students/apply-to-rmit-international-students/student-visas/apply-for-a-visa>)

**In addition to meeting the eligibility criteria for the REDI Program, you will also need to meet the admission criteria of both institutions:**

### **Admission at UoK**

You will be enrolled as Doctoral Student at UoK for the entire duration of the assignment. At admission, you will need to supply:

- High School Diploma
- Bachelor's degree certificate and transcript of records
- Degree certificate and transcript of records of a master's degree in Mechanical Engineering or equivalent, at least 300 ECTS and a study period of at least 8 semesters / four years. Candidates who pursued their degree in another major and/or with less than 300 ECTS and/or with less than 4 years of studies can be admitted under the condition to pass additional courses set by the Doctoral committee.
- Proof of B2 level of English or German according to the European Framework of Reference for Languages (CEFR)

All certificates must be submitted as authenticated copies. Also, all certificates must be submitted in the original language as well as a translated copy. Only translations in English or German language are accepted.

More information: <https://www.uni-kassel.de/uni/en/forschung/nachwuchsfoerderung/doctorate>

### **Admission at RMIT**

You will also be enrolled as Doctoral Student at RMIT for the entire duration of the assignment. At admission, you will need to supply:

- CV
- Complete transcripts for all academic qualifications
- Research proposal or statement of interest in an available research project
- Language certificates
- List of referees

More information: <https://www.rmit.edu.au/research/research-degrees/how-to-apply>

**Apply now** (<https://www.rediprogram.eu/>)

