RMIT UNIVERSITY REDI

Are you REDI?

REDI is a PhD training program like no other: 40+ industry-supported positions, most awarded two PhDs, once-in-a-lifetime year in Melbourne, Australia, annual training weeks in Barcelona, Spain, excellent salaries, access to 60+ partners...

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 101034328

rediprogram.eu

Position Description

Group of research topics: Engineering research field

Position is funded by	- COFUND, Marie Sklodowska-Curie Actions (MSCA), Horizon 2020, European Union - Aachen University of Applied Sciences (FH Aachen), Germany - RMIT University (RMIT), Australia
Research Host	Aachen University of Applied Sciences (FH Aachen), Germany
PhD awarding institution/s:	PhD awarded by RMIT in cooperation with FH Aachen
Locations	- Primary: Aachen, Germany - Secondary: Melbourne, Australia - Annual workshops in Barcelona, Spain
Contract	Full time, fixed term (36 months plus max 12-month extension)
Gross annual salary	51.778 EUR (gross amount before employee's taxes and contributions)
Preferred start date	01/03/2022
Deadline for applications	30/11/2021 (Reference: FH Aachen-DC2)

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

Project 1: Design of FC-Based Propulsion Systems for Aircraft	Project 2: Integration of FC Propulsion Systems in Aircraft	Project 3: Integration of Batteries in All-Electric Aircraft
This project is concerned with the development of a methodology for the design of fuel-cell (FC) based propulsion systems for propeller driven aircraft. This methodology requires the development of suitable single field models for propulsor, fuel cell and airframe aerodynamics and appropriate coupling procedures. High-fidelity simulation approaches and component tests will be performed for validation purposes. Use cases will be studied to demonstrate the capabilities of the methodology.	In this project, aspects of the integration of fuel cell systems in aircraft are to be considered. For this purpose, technologies are to be investigated that allow the integration of the system components while taking into account environmental influences (vibrations, pressures, temperatures) and lightweight construction requirements. On the functional level, investigations will be necessary to enable functional integration while taking into account the safety standards in aviation.	In this project, methods and technologies are to be investigated that enable the integration of large battery systems in airframes. For this purpose, concepts, construction methods, and production methods have to be developed and assessed under consideration of lightweight design aspects, high safety standards and operational requirements. Solutions must take into account airframe loads, aeroelastic behavior of the airframe, crash, thermal aspects, producibility, and maintainability.
Supervisors: Prof. Carsten Braun (FH Aachen) and Prof. Pier Marzocca and Dr. Graham Dorrington (RMIT)		
Research Fields: Aerospace Engineering and Aviation, Applied Sciences		

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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 12 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

Are you REDI? (Expected Profile)

Project 1

Your background and skills: you should have a master‘s degree in Aeronautical Engineering or a similar field of study. A background in the design of aircraft or aircraft propulsion systems is required. Skills: Very good skills in aerodynamics, e.g. propeller aerodynamics, and CFD is required; Knowledge in programming languages is required; Basic knowledge in thermodynamics is preferred; Knowledge in CAD, FEM, and other physics solvers is beneficial

Your work experience: Work experience is preferred but not necessary

Your research experience: The candidate should have a basic knowledge of the methods and procedures of scientific work. Experience in scientific work, for example at a research institution, is preferred.

Project 2

Your background and skills: you should have a master‘s degree in Aeronautical or Mechanical Engineering or a similar field of study. A background in the design of aerospace structures and the integration of airframe systems is required. Skills: Very good skills in CAD-systems and FEM are strictly required; Knowledge of system integration and aviation standards is required; Knowledge in programming languages is preferred.

Your work experience: Work experience is preferred but not necessary

Your research experience: The candidate should have a basic knowledge of the methods and procedures of scientific work. Experience in scientific work, for example at a research institution, is preferred.

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Project 3

Your background and skills: you should have a master's degree in Aeronautical or Mechanical Engineering or a similar field of study. A background in the design of lightweight structures, preferably in the design of aerospace structures, is required. Skills: Very good skills in CAD-Systems and FEM are strictly required; Basic knowledge of lightweight materials and production methods is required; Knowledge in programming languages is preferred.

Your work experience: Work experience is preferred but not necessary

Your research experience: The candidate should have a basic knowledge of the methods and procedures of scientific work. Experience in scientific work, for example at a research institution, is preferred.

Employment Benefits and Conditions

FH Aachen offers a 36-month full-time work contract (extendable up to 48 months in duly justified cases), indicatively starting on 1st March 2022. The position will be based in Aachen or Jülich (Germany). International travel is foreseen, including to Australia (up to 12 months) and Spain (one week per year). At FH Aachen, there is a probation period according to German statutory framework and there 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 51.778 EUR gross per first year (gross amount before employee's taxes and contributions). Of this amount, the estimated monthly net salary* to be perceived by the Researcher is 2.700 EUR. However, the definite amount to be received by the Researcher is subject to national tax legislation. For more information on the estimated net monthly salary, please use the net salary calculator.

**Net salaries can fluctuate in accordance with an individual's personal circumstances (marital status, age, disability, family and dependents, etc. The above indicative net salaries offer an approximation of what a single person in their early 20s could expect to receive in their bank account after taxes.*

Benefits include:

- 30 days paid vacation per year
- Parental leave
- Annual bonus (Christmas bonus)
- Continued payment of wages in case of illness
- 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

REDI to apply? First a little more about us…

FH Aachen

With more than 15,000 students, almost 2,000 graduates a year, ten faculties, more than 100 degree programmes, eleven in-house and five affiliated institutes as well as four competence platforms, FH Aachen University of Applied Sciences is one of the biggest and most important universities of applied sciences in Germany. Around 240 professors as well as approximately 900 employees work here, in teaching, in research and in administration.

FH Aachen aims to be one of the strongest research universities of applied sciences in Germany. Its competences are mainly in the future fields of energy, mobility and life sciences as well as digitalisation and industrial production. The expansion of regional, national and international networking in teaching and research is an essential part of FH Aachen's plans for the future. In this context, the cooperation with numerous and distinguished foreign partner universities of FH Aachen are particularly attractive.

FH Aachen university offers to its Doctoral Students a wide range of training, mentoring and support activities, including:

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- **Mentoring program:** the university provides to its Students a mentoring programme that includes supervision agreement, qualification, consulting, close support by the supervising professor and doctoral college of FH Aachen.
- **Courses and training opportunities:** FH Aachen offer training courses such as Good scientific practice (workshop + E-learning), Project/ time management, Financing, Do I want to do a doctorate?, writing, presentation skills, research communication, entrepreneurship, poster/ oral presentation, science management, Justifying the logic of one's own research, scientific project pitch, Preparing for defence, Writing in the final phase.
- **Language courses:** Language courses are part of the university's offer, e.g. Freshman Institute program which offers online and in-person entrance exams. Also, workshops for doctoral students in English (not only German) are provided: e.g. Research Communication, Entrepreneurship, Good scientific practice
- **Relocation support:** The university provides relocation support e.g. personal consultation for individual questions, 5 day-care centres, maternity protection, family-friendly university, Department of International Affairs, language courses, Student services including student residences and additional services.
- **Cultural and social activities:** Social activities include team events, regular meetings of the doctoral students.
- **Engagement with industry:** the Doctoral Student will closely work with relevant industry partners and benefit from specific training and mentoring opportunities (i.e. secondments, site visits, access to facilities and data, etc.)
- **Further benefits:** FH Aachen offers financial support (personnel and material costs), providing relevant documents and assistance, Steering Committee Doctoral College, networking with universities in the country, exchange programs.

For more information, visit: https://www.fh-aachen.de/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:
    - *Career Mentoring* - career guidance from industry professionals from all disciplines and global locations.
    - *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)

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- *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

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 eligibility criteria by the application deadline:

- **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.

AND the following criteria:

- **Hold a bachelor's degree requiring at least 4 years of full-time study** in a relevant discipline awarded with honours and including a research component; **OR**

- **Hold a master's degree that includes a research component** or a master 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 visa in Germany (More information: https://www.auswaertiges-amt.de/en/einreiseundaufenthalt/visabestimmungen-node)
- 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)
- Purchase a health insurance (in Germany and Australia).

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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 FH Aachen

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

- Degree certificate and transcript of records of a relevant Master's level degree.
- Proof of C1 level of English or German according to the European Framework of Reference for Languages (CEFR).

A degree from a foreign university is deemed to be "technical training" if it has been assessed by the competent state authority as comparable to a German university degree. Therefore, the Central Office for Foreign Education classiiesy the foreign educational qualification by consulting the ANABIN database (Information System for the Recognition of Foreign Educational Qualifications).

More information: https://www.fh-aachen.de/en/university/central-administration/department-v-innovation-transfer/doctorate-at-fh

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/)

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