



**SE²A International Female Programme - International Master's projects:
Measurement of species in reactive complex chemical processes
via mass spectrometry and FTIR spectroscopy**

Project Description

Join us in shaping the future of sustainable aviation!

Are you passionate about reducing greenhouse gas emissions and creating a sustainable future for aviation? The SE²A Cluster of Excellence is at the forefront of this mission, working to develop innovative, energy-efficient solutions for the mobility sector. As aviation requires high power and energy density, fully eliminating combustion-based propulsion is a long-term goal. In the meantime, there's an increasing need for CO₂-neutral combustion technologies. To achieve this, understanding the chemistry behind the conversion of new, carbon-free fuels is crucial.

In our lab, we use cutting-edge analytical techniques, like mass spectrometry and FTIR spectroscopy, to explore these chemical reactions in detail. As part of our team, you'll help set up a new static reactor to study how different flue gases – such as NO, NO₂, N₂O, SO₂, CH₂O, NH₃, CH₄, and H₂O – affect reaction kinetics in post-combustion environments.

What you'll do:

- Design and run experiments focused on these gases.
- Learn and Use advanced tools like mass spectrometry and FTIR spectroscopy with support from experts.
- Contribute to pioneering research that could change the future of aviation.

Requirements

- Female candidate | from non-German university | International
- Completed or in the process of completing a Master's degree in physical chemistry, mechanical engineering or related subjects
- Previous experience in mass spectrometry or laser spectroscopy and/or mechanics is an advantage
- Experience with programming software like Matlab or Python is an advantage
- Interests in experimental studies and analyzing data

- Ability to work responsibly and independently

This position is specifically open to female research interns who are eager to dive into the exciting world of sustainable aviation and play a key role in reducing emissions through groundbreaking research.

Upon successful completion of the project, and depending on available vacancies, we aim to offer the research intern a PhD researcher position, either within or outside the SE²A Cluster of Excellence.

Contact information

Ready to make a difference? Apply today and take the first step towards an exciting career in sustainable energy and aviation technology!

Please send your application, including your CV, transcript of records, and letter of motivation to

Prof. Dr. Ravi X. Fernandes | Dr. Kai Moshhammer-Ruwe

Email: ravi.fernandes@ptb.de | kai.moshhammer-ruwe@ptb.de

Candidates with handicaps will be preferred if equally qualified. Please enclose a proof. The position is part of the SE²A International Female Programme, so only applications by female students of non-German universities are possible. Applications from people of all nationalities are welcome. Please note that application costs cannot be refunded.

The personal data will be stored for the purpose of processing the application. By submitting your application, you agree that your data may be stored and processed electronically for application purposes in compliance with the provisions of data protection law. Further information on data protection can be found in our data protection regulations at <https://www.tu-braunschweig.de/datenschutzerklaerung-bewerbungen>.