

## Early Career Researchers

Early career support in SE<sup>2</sup>A provides continuous assistance for and development of talents during all career stages. Our programme attracts young international researchers starting their professional career.

- **Student level:** SE<sup>2</sup>A conducts a novel Student Science Programme and participates in Excellent.ING honours programme at the Faculty of Mechanical Engineering.
- **Doctoral Researchers level:** Within the Research Training Group SE<sup>2</sup>A offers a scientific and social programme (e.g. workshops, winter/summer schools) tailored to the requirements of the PhD researchers in the Cluster.
- **Postdoctoral level:** Junior Research Groups (JRG) led by JRG leader (equivalent to Junior Professors) and Junior Research Projects (JRP) enable young scientists to realize their own research ideas and concepts.



PhD Welcome-Day in November 2019

## Contact



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# Cluster of Excellence

## Sustainable and Energy-Efficient Aviation (SE<sup>2</sup>A)

# SE<sup>2</sup>A–Sustainable and Energy-Efficient Aviation

The Cluster of Excellence SE<sup>2</sup>A is an interdisciplinary research centre investigating technologies for a sustainable and eco-friendly air transport system. Technische Universität Braunschweig, German Aerospace Center (DLR), Leibniz University Hannover (LUH), Braunschweig University of Art (HBK) and the National Metrology Institute of Germany (PTB) have joined forces in this extraordinary scientific undertaking.

## SE<sup>2</sup>A global objectives

- Innovations and designs for significantly reducing the carbon footprint and noise
- Identification of key research and technology requirements
- Development of tools and criteria for decision-making in future scenarios
- Validation of fundamental approaches
- Recognition of prospective game-changing technologies and transfer into aviation

**DFG** Deutsche Forschungsgemeinschaft

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# Focus of Research

Research in three Integrated Cluster Areas (ICA) lays the foundations for a sustainable and eco-friendly air transport system. Scientists from aerospace, electrical, energy and chemical engineering are working on the reduction of emissions and noise, new energy propulsion systems, as well as recycling and life-cycle concepts for airframes and improvements in air traffic management.



SE<sup>2</sup>A/ Foto: Massel



ICA A –“Assessment of the Air Transport System” will focus on system analysis and evaluation of the air transportation system in different future scenarios.



ICA B –“Flight Physics and Vehicle Systems” will conduct fundamental research on enabling technologies for sustainable transport aircraft with zero-fossil energy supply.



ICA C –“Energy Storage and Conversion” deals with the fundamentals of providing the amount of energy and energy density required for flight.

## Our Partners are:

Braunschweig University of Art  
Hochschule für Bildende Künste Braunschweig

Leibniz  
Universität  
Hannover

**PTB** Physikalisch  
Technische  
Bundesanstalt  
Braunschweig und Berlin

**DLR** Deutsches Zentrum  
für Luft- und Raumfahrt e.V.  
in der Helmholtz-Gemeinschaft

# Equal Opportunity

Establishing equal opportunities and gender equality is a top priority for TU Braunschweig and SE<sup>2</sup>A. Programmes are offered at different qualification levels:

- High school students
- University students
- Doctoral researchers
- Post-doctoral researchers

SE<sup>2</sup>A provides mentoring and group coaching in cooperation with TU Braunschweig Equal Opportunities Office.

## Special Highlight: changING – a Research Club in SE<sup>2</sup>A for High School Students

High school students from 10th grade on work on their own research questions within the SE<sup>2</sup>A network.

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ChangING Kick-off Meeting in October 2019