

[Show online version](#)

## SE<sup>2</sup>A Newsletter 05/2023



Dear members and friends of the cluster SE<sup>2</sup>A,

we are pleased that the 2nd internal cluster phase started in January. We are looking forward to new projects, scientific exchange and networking.

We are also looking forward to the SE<sup>2</sup>A Conference in August. The SE<sup>2</sup>A Joint Retreat in September 2022 was a great success and we are happy that more than 60 researchers have decided to participate.

And finally, we would like to extend a warm welcome to all new scientists in the cluster!

With best regards,

**Prof. Dr.-Ing. Jens Friedrichs**  
(Spokesperson SE<sup>2</sup>A)

**Dr. Doris Pester**  
(SE<sup>2</sup>A-Managing-Director)

The SE<sup>2</sup>A-newsletter will be published three times per year. For further information please visit our website: <https://www.tu-braunschweig.de/se2a>

---

### // LATEST NEWS

#### February 2023 SE<sup>2</sup>A General Assembly

On February 13, the SE<sup>2</sup>A General Assembly was held in the NFF auditorium. The last years of the cluster were summarized by Prof. Dr. Jens Friedrichs who also gave an overview on the time ahead. Priv.-Doz. Dr.-Ing. Gabriele Raabe provided information

about the doctoral researchers program.

We have said goodbye to Sabine C. Langer (ICA A coordinator), Rolf Radespiel (ICA B coordinator), and Jörg Seume (ICA C coordinator). We thank you for your time and collaboration within the cluster!

Finally, the project leads elected the SE<sup>2</sup>A board members and the new ICA leads: Prof. Peter Hecker (ICA A), Prof. Ulrich Römer (ICA B) and Prof. Richard Hanke-Rauschenbach (ICA C).

February 2023

## SE<sup>2</sup>A doctoral researcher Tobias Müller at DIG1T-Studio



Tobias Müller works at the Institute for Environmental Economics and World Trade at the Leibniz University Hannover and is a doctoral researcher of the SE<sup>2</sup>A cluster. He recently contributed to LUH's DIG1T-Studio project by presenting his current SE<sup>2</sup>A research project "Hydrogen in sustainable aviation: Macroeconomic impacts and state intervention". Tobias Müller describes that his research deals with the possible macroeconomic effects of using hydrogen in the aviation industry.

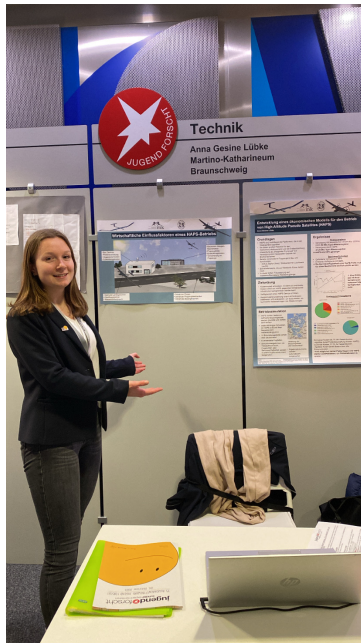
In his contribution, he explains why it is relevant from a climate change perspective to research on alternative propulsion solutions for aircrafts. Therefore, he points out the importance of the research of the SE<sup>2</sup>A Cluster of Excellence.

[Click here](#) to watch the video!

March 2023

## changING "Jugend Forscht"

changING student Anna Lübke (Martino-Katharineum



Anna's project was based on high altitude unmanned platforms operating in the stratosphere (High Altitude Pseudo Satellites - HAPS). She developed an economic model for the operation of HAPS for comprehensive mobile network coverage at the Institute of Flight Guidance. Congratulations Anna!

[Click here](#) for more information about the project and [here](#) for more information about changING.

April 2023

"Zukunftstag": The SE<sup>2</sup>A Cluster of Excellence participated!



We are thankful that we had the opportunity to be a part of the "Zukunftstag" at TU Braunschweig and therefore had the chance to offer pupils an insight into our research. Students from grades 5-10, among them mainly girls, had the opportunity to register for the programs of the institutes: Institute of Jet Propulsion and Turbomachinery (IFAS), Institute of Flight Guidance (IFF), Institute for Fluid Mechanics (ISM) and the Institute of Aircraft Design and Lightweight Structures (IFL).

In total, about 70 pupils made their way to the Hermann-Blenk-Straße in order to have an exciting and practical insight into the topic of aviation. For example, the older participants had the chance to get to know flight simulators, to learn about their practical use, and to try a simulation themselves.



For the younger participants, the topic of "crash safety " was on the agenda. After they had been given theoretical knowledge, they had to transfer this input to practice: A little passenger, represented by a chicken egg, was to be protected from a collision. For this purpose, the young constructors had materials such as cardboard and balloons at their disposal. It was particularly exciting when the little passengers were transported to heights of 5, 7, or even 10 meters to put the constructions of the small groups to the ultimate test. We are very pleased that each group found a way to protect the egg from breaking, and that the constructions protected the little passenger even from a 10 meter drop.



Overall, the day was a great success and we hope to have inspired the researchers of tomorrow for the topics of the cluster!

[Click here](#) for more information about the Future Day at the SE<sup>2</sup>A cluster and [here](#) for more insights of the Future Day at TU Braunschweig

April 2023

## A visit from the Science Minister



On April 13, Falko Mohrs, Lower Saxony's Minister for Science and Culture, visited the research airport of the TU Braunschweig and was also introduced to our research within the SE<sup>2</sup>A cluster.



From left to right: Prof. Jens Friedrichs, Dr. Thorsten Kornblum (Mayor Lower Saxony), Mark Schmidt, Prof. Angela Ittel, Carola Meyer (Managing Director of research airport), Falko Mohrs, Prof. Arno Kwade (Institute for Particle Technology)

We are very pleased that Prof. Jens Friedrichs, SE<sup>2</sup>A Spokesperson, and Prof. Dr. Angela Ittel, President of the TU Braunschweig, had the opportunity to give the Science Minister of Lower Saxony an interesting insight into our important and relevant research. [Click here for more infos](#)

May 2023

## SE<sup>2</sup>A doctoral researcher Christopher Blech wins "Hirschvogel Prize" for his dissertation



Former SE<sup>2</sup>A doctoral researcher Dr. Christopher Blech has been honoured on Mechanical Engineering Day 2023 in May.

He won the "Hirschvogel Prize" for the best dissertation of 2022 at the Faculty of Mechanical Engineering. He wrote his dissertation with the title "Wave-resolving aircraft cabin noise prediction" at the institute for Acoustics. Congratulations!

On the picture on the left you can see Dr. Christopher Blech next to Jasmine Holfeld from the Hirschvogel Foundation, Prof. Markus Böl (Head of Institute, Institute of Solid Mechanics) and Prof. Sabine C. Langer (Head of Institute, Institute for Acoustics). [Click here](#) for more information about his dissertation and the Mechanical Engineering Day 2023.

## // RESEARCH

The Cluster of Excellence "Sustainable and Energy-Efficient Aviation" is an interdisciplinary research center with the purpose of investigating technologies 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, as well as recycling and life-cycle concepts for airframes and improvements in air traffic management. Technische Universität Braunschweig, the German Aerospace Center (DLR), Leibniz University Hannover (LUH), the Braunschweig University of Art (HBK) and the National Metrology Institute of Germany (PTB) have joined forces in this extraordinary scientific undertaking. The Cluster organisation is structured in three Integrated Cluster Areas (ICAs) reflecting the mission-critical research demands and following a coherent and coordinated roadmap. The three ICAs resulting from our assessment of critical research demand are:

### ICA A: Assessment of the Air Transport System

The goal of this cluster area is the development of comprehensive criteria and metrics for sustainable air transport that can serve as a basis for decision-making and future scenarios.

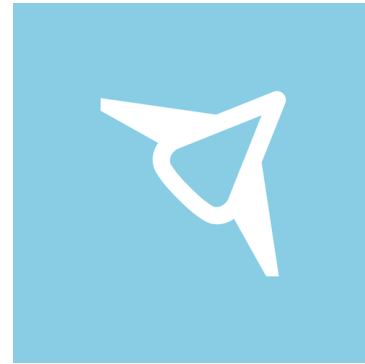
[More information](#)



### ICA B: Flight Physics and Vehicle Systems

This cluster area takes an in-depth look at technologies that have the potential to significantly reduce the power required from the propulsion system.

[More information](#)



## ICA C: Energy Storage and Conversion

Even with major advances in aircraft drag and propulsion efficiency, carbon emissions can only be reduced, while carbon-free aviation requires new concepts for the energy supply. The cluster looks at advanced lithium-sulfur chemistry for solid-state batteries as well as load bearing batteries.

[More information](#)



## // SE<sup>2</sup>A EVENTS

### Paper of the Month - New seminar date

**SE<sup>2</sup>A Paper of the Month**

- Let your colleagues know
- Discuss high quality Cluster Research
- Establish interdisciplinary exchange

Every last Thursday of the month at 4:30 p.m.

In our seminar "Paper of the Month" SE<sup>2</sup>A doctoral researchers have the opportunity to present their high ranking SE<sup>2</sup>A-publication, to learn about the projects of your colleagues in the Cluster, and to exchange ideas. Please keep in mind that the presentation date in 2023 is every last Thursday of the Month.

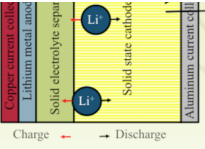
We are always pleased to hear from you if you are interested in presenting your high-ranking SE<sup>2</sup>A publication. If you are not interested in presenting a publication, we welcome you to participate in the discussion. Please reach out to the [Managing Office](#) for more information. The presentation in June will be held by Alexander Barke.

**SE<sup>2</sup>A Paper of the Month June 2023**

Green batteries for clean skies: Sustainability assessment of lithium-sulfur all-solid-state batteries for electric aircraft

Journal of Industrial Ecology (2022)  
doi.org/10.1111/jiec.13345

Alexander Barke, Walter Griebler, Dominik Strohmann



Charge - - - - - Discharge

Copper current collector  
 Lithium metal anode  
 Solid electrolyte separator  
 Solid state cathode  
 Aluminum current collector

Binder  
 Carbon black  
 Sulfur  
 Solid electrolyte

Alexander Barke - Walter Ciszakow - Dominik Steckermeier  
 Christian Thies - Jan-Linus Popien - Peter Michalowski - Sofia Pinheiro  
 Melo - Felipe Cerdas - Christoph Herrmann - Ulrike Krewer - Arno  
 Kwade - Thomas S. Spengler

June 29<sup>th</sup>, 2023 - 4:30 pm - Presentation & Discussion  
 We welcome you to participate!

## // ABOUT THE CLUSTER



### Kickoff-Event for new doctoral researchers

**When?** 19.06.2023 @14:00 - 18:00

**Where?** Niedersächsisches Forschungszentrum Fahrzeugtechnik (NFF)  
Volkswagen Auditorium 1 and 2  
Hermann-Blenk-Straße 42

Bringing all new SE<sup>2</sup>A doctoral researchers together, we not only want to network and want to get to know each other, but we also want to provide them with all relevant information about the cluster. This refers to the qualification programme for young researchers and the people involved in it. We are happy to meet you soon in person!



**Save the date!** This years SE<sup>2</sup>A Conference will take place from August 29th-31st. We want to build on the results and findings achieved so far in our cluster projects as a starting point for new networking between the projects in the 2nd SE<sup>2</sup>A research phase.

We also plan on thinking about the future road map for the 2nd SE<sup>2</sup>A proposal in smaller groups. We are looking forward to many registrations and an exciting exchange in August. Please also note the details that will reach you by mail within the next weeks.



## SE<sup>2</sup>A Female Programmes

### SE<sup>2</sup>A International Female Programme - Research Internships

**Target group:** Female academics from abroad who graduated with a Master's degree

**Aim:** Increasing the number of female researchers at the SE<sup>2</sup>A cluster & offering them the opportunity to experience first-hand research environment

### SE<sup>2</sup>A International Female Programme - International Master's projects

**Target group:** Female students from abroad who are about to start their Master's thesis

**Aim:** Giving foreign female students the opportunity to write their thesis in context of a student position at the cluster & offering them insights into research practice

### Start Science Programme

**Target group:** Female students who are interested in an employment as a student assistant

**Aim:** Increasing the number of female graduates qualified for doctoral studies & to develop a topic for their graduation thesis

## Open positions at



# SE<sup>2</sup>A

We are currently offering many vacancies in various areas of aviation research! You can find more information by [clicking here](#)

## Our SE<sup>2</sup>A team welcomes new colleagues

We warmly welcome two new colleagues in the SE<sup>2</sup>A Managing Office: Johanna Göschel is joining the cluster as a new ICA B Coordinator and Marisa Kauert will be the new project assistance.

## // EVENT ANNOUNCEMENT



## SE<sup>2</sup>A Paper of the Month June 2023 | online

In the upcoming issue of the SE<sup>2</sup>A Paper of the Month, Alexander Barke will present his publication "Green batteries for clean skies: Sustainability assessment of lithium-sulfur all-solid-state batteries for electric aircraft" The presentation will take place on June 29th, 4:30 pm.





## SE<sup>2</sup>A Conference 29 - 31 August 2023 | planning stage

Save the date! This years SE<sup>2</sup>A Conference will take place from August 29th-31st. We want to build on the results and findings achieved so far in our cluster projects as a starting point for new networking between the projects in the 2nd SE<sup>2</sup>A research phase.



## DLRK 2023 19 - 21 September 2023 | Stuttgart

The congress is the central event of the German-speaking aerospace community. As a multidisciplinary event, the DLRK offers all participants a platform to present significant findings, progress and developments in the aerospace industry.

### Contact

Technische Universität Braunschweig  
Sustainable and Energy-Efficient Aviation  
Hermann-Blenk-Str. 42  
38108 Braunschweig

Tel.: (0531) 391-66661  
Mail: [se2a@tu-braunschweig.de](mailto:se2a@tu-braunschweig.de)

[Unsubscribe Newsletter](#)

### Imprint

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

Photo credit: SE<sup>2</sup>A (14), DGLR (1), changING (1), TU Braunschweig/ Christian Bierwagen (2), TU Braunschweig/ Max Fuhrmann (1), Leibniz Universität Hannover/ DIG1T-Studio (1), fotodesign Braunschweig (1)

[Legal Notice](#)

[Privacy](#)

Find SE<sup>2</sup>A on twitter and the SE<sup>2</sup>A research club changING on Instagram!



© 2023 SE<sup>2</sup>A

Klicken Sie [hier](#), wenn Sie sich von unserem Newsletter abmelden möchten.