

SE²A Newsletter 10/2022



SE²A Newsletter 10 2022

Dear members and friends of the cluster SE²A,

seeing all cluster members in person again after a long time was probably one of the best events in September. In this newsletter you will find some impressions of the Joint SE²A Retreat.

The publication of the new SE²A/TU Delft White Paper "Accelerating the path towards carbon-free aviation", the truly successful SE²A Science Slam, impressions from US research stays abroad and many other events are picked up in this newsletter.

An important step for the scientific development of the cluster lies ahead of us: the application phase for the second funding period has ended and we are looking forward to the new projects and wish all project leaders successful research!

With best regards,

Prof. Dr.-Ing. Jens Friedrichs
(Spokesperson SE²A)

Dr. Doris Pester
(SE²A-Managing-Director)

The SE²A-newsletter will be published three times per year. For further information please visit our website: <https://www.tu-braunschweig.de/se2a>

// LATEST NEWS

May 2022

SE²A Science Slam in cooperation with Haus der Wissenschaft



20. Mai 2022
20 Uhr

Science Slam
mit dem
Exzellenzcluster
SE²A

Thorben Lenk
Elektrochemische
Synthese von
Treibstoffen der Zukunft

Not only excellent at research, but also on stage!

The first Science Slam of the Cluster of Excellence SE²A took place in cooperation with the Haus der Wissenschaft on May 20th. Our speaker of the cluster, Prof. Jens Friedrichs, introduced the event and the cluster.

Six doctoral researchers showed great commitment and inspired the audience with their 10-minutes presentations on e.g.: "Electrification and questionable alternatives", "How are experiments made with the computer?" or "Germany's Next Macro Model for Hydrogen and Aviation".

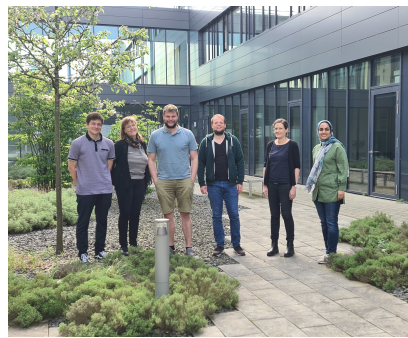


We are pleased that the event was almost sold out and the atmosphere throughout the evening was great! Finally, the winner of the Science Slam was Thorben Lenk who talked about electrochemical synthesis of future fuels from an unicorn's perspective.

To use the words of Prof. Angela Ittel, President of the TU Braunschweig: "It was a blast! Great slams and a wonderful audience". Thank you all for making this event that great and special thanks to our slammers: Sahar Rabet, Stefanie Ollenburg, Thorben Lenk, Dr. Steven Gronau, Yannik Hüpel and Hendrik Schefer.



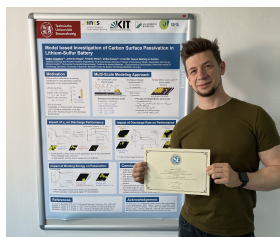
Winner Thorben Lenk with his award.



The SE²A science slammers in the preparation workshop

May 2022

SE²A doctoral researcher Walter Cistjakov awarded with Poster Prize



The doctoral researcher Walter Cistjakov, from the Institute for Energy and Process Systems Engineering, wins Poster Prize at the Topical Meeting of the International Society of Electrochemistry.

In the joint work with the Cluster of Excellence SE²A on "Model based Investigation of Carbon Surface Passivation in Lithium-Sulfur Battery" he shows how to improve the performance of sulfur cathodes. Congratulations!

June 2022

Politicians from the Lower Saxony state government visited the NFF

The visit of the Lower Saxony state government to the Braunschweig region focused on "technology development and the automotive industry".

Therefore, the cabinet meeting took place at the Lower Saxony Research Centre for Automotive Engineering (NFF).

The state politicians informed themselves about current research projects with the focus on mobility. We are pleased that SE²A got the chance to present the cluster to the politicians. The Cluster of Excellence SE²A was represented by our Vice Speaker Prof. Rolf Radespiel and Managing-Director Dr. Doris Pester.

June 2022

"Auf eine Limo mit..." SE²A doctoral researcher Stefanie Ollenburg

SE²A is again part of the series "Auf eine Limo mit...". This time, Jennifer Haacke welcomes Stefanie Ollenburg, one of the SE²A young researchers, at the location of the "Zukunftsfestival HEX" in Riddagshausen. They talk about her research in the Cluster of Excellence SE²A and her field of future studies.

Stefanie Ollenburg emphasises the importance of the interdisciplinarity of the SE²A research project and tells more about human centred questions that arise in the context of future aviation, like how ticket prices will change or how human beings will feel in an airplane without windows. The full interview can be found [here](#). Please note that the interview was conducted in German!

Do you like this series? More about SE²A can be found in "Auf eine Limo mit... Dr. Doris Pester" by [following this link](#)

June 2022

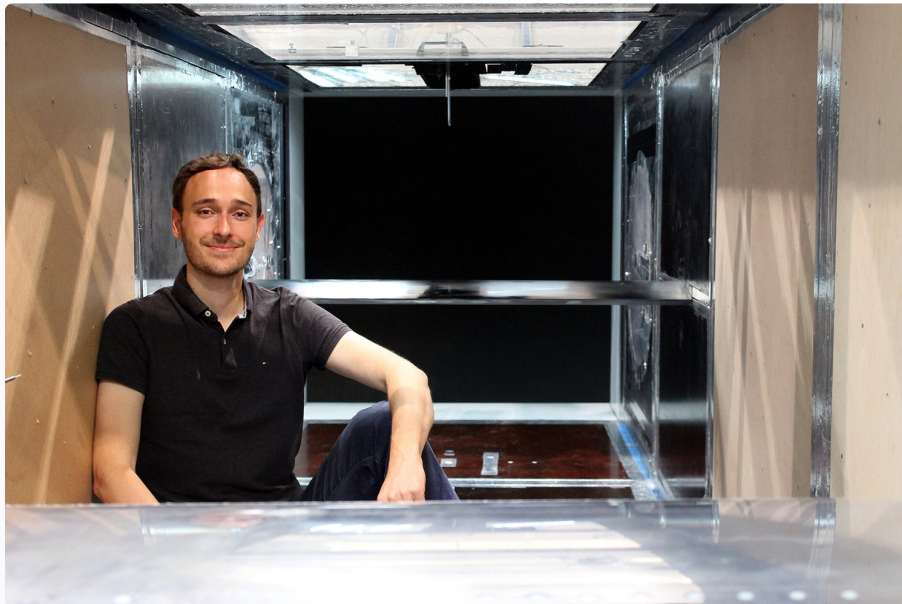
Junior Research Group (JRG) "Flow Physics of Load Reduction"

An interview with Dr. André Bauknecht

The JRG is investigating the potential of efficient active load reduction systems to make flying more sustainable and comfortable in the future. In the interview Dr. Bauknecht, the Head of the JRG, gives an interesting insight into the current research of his group and emphasises the relevance of their research contributing towards sustainable aviation.

While talking about the relevance of their research topic, Dr. Bauknecht points out his personal motivation as well. He emphasises that future aircraft must become significantly lighter so that energy requirements can be further reduced. He diagnoses a clear application perspective of the JRG's research as a technical solution to mitigate climate change and is therefore of high relevance for the society.

[Click here](#) for the full article!



July 2022

Participants of the SE²A female student science programme receive "Braunschweiger Bürgerpreis"



Ten students receive the “Braunschweiger Bürgerpreis” in 2021 for their outstanding achievements. We are happy to see that two of the winners, Edona Capric and Miriam Sprick, were also part of the SE²A “female student science programme”.

Both of them show a high level of social commitment. For example, they are involved in the project “S.o.S – Studying without Language Barriers”. Ms. Capric works on technical topics related to electric flying. Ms. Sprick is a Master’s student in Biochemical Engineering. Congratulations!

July 2022

Research club changING

Successful yearly completion for three batches of the research club.

60 students of the changING research club received a certificate and acknowledgement for their dedicated performance in the last year. SE²A co-speaker Professor Rolf Radespiel and project organisers M.Sc. Dina Al-Kharabsheh and Dr. Anna Geese (Institute of Science Education) are both enthusiastic about the students’ engagement, as well as impressed by the projects presented during the graduation ceremony. For instance, a group of young researchers has designed and 3D-printed an aerofoil, which will be used to carry out measurements in the next changING year.



During their research year, the students met in the afternoon almost every second week in a different institute and were invited to experiment and gain insights into research for sustainable aviation. The research club has been offering different meetings and projects for pupils for three years now. The organizers are looking forward to the next research year starting after the autumn holidays. The registration for new interested students is possible until 24th of October [by following this link](#).

The research club changING of the Cluster of Excellence – Sustainable and Energy-Efficient Aviation – started in October 2019, and offers young students from 10th grade onward the opportunity to research and experiment in different institutes and facilities of the cluster. [Read more here](#). More news about changING you can find [here](#) or on the [Instagram account](#)!



July 2022

New White Paper by SE²A and TU Delft

The scientists of the TU Braunschweig, the Cluster of Excellence SE²A and the TU Delft collaborated on the new White Paper. They discuss the current paths and solutions for the radical innovation of aviation towards true sustainability and climate compatibility. The current state of technical innovation and their development are presented with respect to feasibility and viability. [Click here to read the White Paper](#)



July 2022

SE²A celebrates Diversity Day with TU Braunschweig

The purpose of the event was to promote Networking between students, employees and interested people in an open atmosphere. TU Braunschweig celebrated their first Diversity Day on July 14th and the Cluster of Excellence SE²A was happy to be part of it and to represent the values of our cluster. The entire event was held under the motto "First generation students" and the programme contained the hoisting of the rainbow flag at the main campus and, among other things, a stage programme including an expert discussion on the topic "What can universities do to promote social diversity?", moderated by the President of the TU Braunschweig, Prof. Angela Ittel.



The Diversity Day pursues the goal to make projects and initiatives, working on topics of diversity and anti-discrimination, visible.

Five of our doctoral researchers and Tatjana Szalkau, who organised the booth, talked to interested people about diversity and anti-discrimination in the context of an international cluster of excellence.

SE²A presented a poster board with quotes from our cluster, which represents the diversity of backgrounds, views and experiences within SE²A and offered a basis for discussions at the booth. The atmosphere was great and the people were very curious. [More Information](#)



July/ August 2022

Mail from ... Irvine and Rhode Island

Tim Wittmann and Alexander Barke report on their research stays in Irvine, California and Rhode Island (USA).

Doctoral researcher Tim Wittmann from the Institute of Jet Propulsion & Turbomachinery (TU Braunschweig), was spending a research stay in Irvine, funded by the SE²A internationalisation programme for young researchers. He visited the National Fuel Cell Research Center at the University of California, Irvine and worked on a system design for oxygen supply to fuel cells at high altitudes.

"Because of the pandemic, I didn't meet many people, [...]. The stay in California is a fantastic opportunity for me to make up for that", he said, in order to underline the quality of his 6 months stay.



Tim Wittmann at his research stay at the University of California



Alexander Barke at the University of Rhode Island

Doctoral researcher Alexander Barke is part of the Institute of Automotive Management and Industrial Production (TU Braunschweig) and worked at the Department of Mechanical, Industrial and Systems Engineering at the University of Rhode Island for 3 1/2 months.

"Thus impressions of other universities are always helpful to reflect upon your work better and, therefore, to develop further.", he explains, pointing out the opportunity to broaden his horizon during the time spent abroad.

Read more about the research stay of Tim Wittmann [here](#)
Read more about the research stay of Alexander Barke [here](#)

September 2022

Stadtradeln: SE²A on bike

This year again, the team "SE²A on bike" participated in the city cycling for Braunschweig. Between 4th and

24th of September a small team of 7 participants cycled.

With 115 kilometres cycled, we are happy to announce Dr. André Bauknecht as this year's SE²A on Bike winner! Congratulations! As promised, the three cyclists with the most kilometres will receive one of the limited SE²A mugs filled with small energy dispensers.

The other two cups will go to PD Dr. Gabriele Raabe (70 kilometres) in second place and Dr. Doris Pester (66 kilometres) in third place!



With a total amount of 388 km we saved 60kg CO₂ this time! Thank you all for participating and we look forward to cycling with you again next year!

[More about Stadtradeln](#)

September/ October 2022

SE²A is participating in the "Luftfahrt der Zukunft" program again

"Luftfahrt der Zukunft" offers a divers program about future aviation. SE²A is part of this year's program, again with two topics.

The panel discussion with Prof. Dr. Jens Friedrichs, the speaker of the SE²A cluster, took already place on September 26th. Over 90 listeners joined the expert talk about opportunities and challenges of sustainable flight propulsion.

There will be a second contribution from SE²A on the 24th of October: Prof. Dr.-Ing. Gerhard Glatzel, Dr. Mehdi Mozuni and SE²A doctoral researcher Stefanie Ollenburg will give a presentation about the air travellers of the future and how to determine their needs today. [Read more here](#)

//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](#)



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](#)



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](#)



Technische Universität Braunschweig receives funding of 4 million

euros as part of the MWK program „ExzellenzStärken“

With the program, the ministry (Niedersächsisches Ministerium für Wissenschaft und Kultur MWK) wants to support universities in applying for the next round of the excellence strategy. The funding will primarily be used to strengthen the starting position in the next call for applications. We are excited that the SE²A Cluster receives support from the state of Lower Saxony! [Read more](#)

// SE²A EVENTS

Joint SE²A Retreat - September 12-14, 2022



Finally, the SE²A cluster of excellence was able to meet in person again for the joint event of the internal cluster review and the SE²A Symposium. Three days of exchange about what is happening in the respective projects in the cluster, of networking and listening to keynotes from external speakers were possible again in person.

The event took place in Wolfsburg and offered the opportunity to round up the days having a dinner with a view on the Allersee and to stroll around.

The key lectures this year were held by Petra Aumann (Flight Physics Strategy and Capabilities, Airbus) and Henri Werij (Dean of the Faculty of Aerospace Engineering, TU Delft) and contributed to a lively exchange!

The SE²A Joint Retreat was a great success and we are happy that more than 60 researchers have decided to participate!

We would like to thank all of you for making this SE²A Retreat such a success and we hope to see all of you again in person in the very near future!



Upcoming Summer School 20th-21st, October 2022



Summer School for doctoral researchers

We are happy to announce the program for our annual Summer School.

On the first day we will have two interesting presentations on the topics of Acoustics (Prof. S. Langer) and on Aircraft Design (S. Karpuk). The day will be rounded up by a buffet that is as international and diverse as our cluster. The second day will be all about visiting one of the Airbus sites.

We are looking forward to seeing you all at our Summer School!

// ABOUT THE CLUSTER

We say goodbye to Svenja Bartels and thank her for her valuable work as a scientific coordinator of the cluster area ICA B - "Flight Physics and Vehicle Systems" in the cluster of excellence SE²A. We wish her all the best for her future path!

// EVENT ANNOUNCEMENT



Luftfahrt der Zukunft: "Flugreisen der Zukunft - wie ermitteln wir heute deren Bedürfnisse?"

October 24, 2022 | online

The presentation on air travel of the future will be held by Prof. Dr. Gerhard Glatzel, Dr. Mehdi Mozuni & Stefanie Ollenburg from the Hochschule für Bildende Künste Braunschweig (HBK). [More Information](#)



Summer School
for doctoral researchers

SE²A Summer School for doctoral researchers 2022 **October 20-21, 2022 | Braunschweig**

We are looking forward to seeing you all at our Summer School at TU Braunschweig!



SE²A Paper of the Month **October 26, 2022 | online**

In our seminar "Paper of the Month" you have the opportunity to present your high ranking SE²A-publication, to learn about the projects of your colleagues in the Cluster, and to exchange ideas. The event takes place every last Wednesday of the month at 4:30 pm.

Contact

Technische Universität
Braunschweig

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

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

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