

SE²A Newsletter 05/2022



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Dear members and friends of the cluster SE²A,

Openness to the world, tolerance and freedom of opinion are values that we as scientists stand for, that we live every day and that we convey to our students from all over the world. Peace and freedom are indispensable foundations of this transnational community. The invasion of Ukraine by Russian troops and the military attacks ignore these values and have severe consequences on our long-standing scientific relations.

In the daily work of the Cluster of Excellence SE²A, we stand for these values and have a respectful interaction with each other in our large interdisciplinary and international network.

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: www.tu-braunschweig.de/se2a

// YOUNG SCIENTISTS - OPEN CALL

Junior Research Group Lead Positions (m/f/d) in the Cluster of Excellence SE²A

SE²A searches for four JRG leads with a doctoral degree and a strong research background in their respective fields.

The following JRGs shall be established:

- [Socio-ecological Interaction of Air Transport System](#)
- [Long-Range Aircraft Configurations and Technology Analyses](#)
- [Adaptive Compressors](#)
- [Evaporative cooling of main components in electrified aircrafts](#)

The deadline for submitting applications is the 31st of May 2022.
More information [here](#).

// LATEST NEWS

Januar 2022

SE²A 2nd cluster-internal funding period starts soon

Since the launch of the cluster in 2019, scientific developments have continued to advance and both the industrial and political landscape have continued to shape the sustainability requirements in aviation.

Starting at the beginning of the year, the three ICA coordinators Prof. Sabine Langer (ICA A), Prof. Rolf Radespiel (ICA B) and Prof. Jörg Seume (ICA C) have been fine-tuning the SE²A research agenda for the 2nd funding period with new research projects and a new cohort of PhD researchers.

In intensive exchange rounds with lively and valuable discussions, the relevant topics and long-term developments were identified by the ICA coordinators together with the current SE²A project leaders and scientists, as well as potential future international cooperation partners. In close collaboration with the SE²A board, the proposed research agenda was agreed upon and the timeline for the call for proposal process was set with the call for projects in early June.

With four topics identified, the call for new SE²A Junior Research Group Leaders has launched SE²A's second exciting research phase.
[Applications are still welcome until 31.05.2022.](#)

February 2022

TU Braunschweig shows solidarity with Ukraine

In order to express our concern about the current situation to the outside world, peace doves are fluttering on the flags in front of the building of the Automotive Research Centre Niedersachsen (NFF) on the campus at the research airport in Braunschweig.

Furthermore, TU Braunschweig is offering comprehensive and unbureaucratic support to Ukrainian students and university staff as well as refugees with immediate effect.

Find more information about support options and how to help on the [Website of the TU Braunschweig](#)



March 2022

„Exzellent erklärt – Spitzenforschung für alle“ The podcast of the Clusters of Excellence talks about SE²A

"Sustainable Aviation - New Aircraft Designs, Different Fuels" is the topic of episode 8, in which the Cluster of Excellence SE²A is presented. Sustainable flying by 2050 – How can we imagine this? What role will kerosene, hydrogen or electricity play? Podcaster Larissa Vassilian talks to Prof. Jens Friedrichs, Speaker of the Cluster of Excellence and Prof. Rolf Radespiel, Vice-Speaker of the Cluster of Excellence, about the goals of SE²A.

Background: 57 Clusters of Excellence, 1 Podcast. Every month, „Exzellent erklärt“ reports from one of the research alliances funded under the Excellence Strategy of the

German federal and state governments. The successful format started in September 2021 to bring currently relevant top research to the general public. Previous topics include "Climate change - is 1.5 degrees still plausible?" by the Cluster of Excellence "CLICCS" or "Tactile Internet - Intelligent textiles, robots and help in the operating room" by "CeTI".

[More information and the previous podcast episodes](#)



April 2022

Zukunftstag at TU Braunschweig

A total of 211 pupils spent a day at more than 20 institutes and facilities to get a taste of what it's like to work in the laboratories, workshops and lecture halls of our university. There was also a lot going on at the Research Airport Campus: Dr. Doris Pester, CEO of SE²A, welcomed more than 40 girls to the world of aviation on Future Day 2022. They visited various institutes in several groups. The highlights, among others, were a flight simulator and the lecture about the TU Braunschweig's world record in paper aeroplane construction. They also built paper airplanes by themselves under guidance to test flight characteristics.

We hope that we could provide our guests with interesting insights into science and would like to thank all those involved in the organisation of this exciting day. [Read more](#)



May and July 2022

Prof. Merino-Martinez from TU Delft is guest speaker of SE²A at "Faszination Akustik"

Within the lecture series "Faszination Akustik - Eine Reise durch die Welt des Schalls" Prof. Merino-Martinez from TU Delft will give a lecture as guest speaker of the Cluster of Excellence SE²A. His topic will be "Acoustic imaging in aeroacoustic applications: Fundamentals of beamforming and recent developments". You can listen to his talk in attendance in PK11.2 or online via WebEx on **July 20, 2022 at 16:45**.

A second talk with a strong focus on aviation is scheduled on **May 18, 2022, at 16:45**. PD Dr. rer. nat. Manuel Keßler, Institut für Aerodynamik und Gasdynamik, Universität Stuttgart: will talk about "Aeroakustische Simulation in der Luftfahrt". This talk is only available online and in German. Find more information [here](#)



Faszination Akustik

Eine Reise durch die Welt des Schalls

Öffentliche Ringvorlesung im Studium Integrale der TU Braunschweig

May 2022

SE²A at "Salon der Wissenschaft"



The first "Salon der Wissenschaft" will take place on Friday 13 May and is dedicated to the topic: Questions for the Future.

At this event, participants will have the opportunity to discuss questions about the future in personal table discussions with scientists. We are also very pleased

that a scientist from the SE²A Cluster of Excellence, Stefanie Ollenburg, will be a dialog partner at the event. Further information on the programme and registration can be found at: www.salonderwissenschaft.de

May 2022

Research club changING

We are happy that the new class of 2021 joined the club in November last year.



Class of 2021 at the kick-off event

The students are currently visiting the various institutes and are thus gaining insights into the different areas of focus. They are also able to conduct experiments by themselves.

The class of 2020 is in its second year at changING and is currently working primarily on its own projects in collaboration with the Protohaus.

Nevertheless, they still have the opportunity to visit institutes and learn about their research work.



Class of 2020 brainstorming for their own projects



Class of 2019 at the Campus Rally

Our first class, which has been with us since 2019, goes through various events on the topic of career orientation. This gives the students an insight into the professions & an overview of possible courses of study. The students are currently working on their own research projects in the various institutes.

Besides the scheduled programme, the groups can take part in various activities. Most recently, they were able to try out a VR escape game that is currently being tested. Short summaries of the respective events can be found on our [Instagram](#) account.

// 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 introduced SE²A JRG

Since January 2022, one junior research group at TU Braunschweig has been presented each month. The February issue is about the SE²A Junior Research Group A1 "Overall System Evaluation". [Read more](#)



// UPCOMING SE²A EVENTS

Entertaining Research: SE²A Science Slam at Haus der Wissenschaft

The excitement for the first SE²A Science Slam is huge! We are looking forward to excellent contributions from various areas of the cluster. In a maximum of ten minutes, the SE²A researchers will give their best to present their research topic in an understandable and exciting way to get the audience on their side. Who will they choose as the "SE²A Science Slam Champion 2022" at the end of the evening?

More Information:

May 20, 2022: 8 pm at Haus der Wissenschaft, Pre-sale tickets and more information [here](#).

Participating researchers:

Yannik Hüpel, Sahar Rabet, Stefanie Ollenburg, Thorben Lenk, Hendrik Schefer and Steven Gronau
We would like to thank the participating SE²A researchers for their great efforts and are very much looking forward to your contributions!



Joint SE²A Retreat - September 12-14, 2022

This year the SE²A Symposium and the Internal Cluster Review is combined in our joint SE²A Retreat. In an undisturbed atmosphere this event allows for sound discussions between all researchers in the Cluster to discuss how sustainable aviation can be further pushed forward by SE²A.



We are pleased to announce that our event will take place at Warberg Castle. You will find all information [here](#).



// ABOUT THE CLUSTER

We welcome Tatjana Szalkau at the Managing Office of the Cluster of Excellence SE²A as Scientific Coordinator. She is taking over the coordination of the programmes for Early Career Researchers and the Gender Equality programmes.

// EVENT ANNOUNCEMENT

SE²A Science Slam



May 20, 2022 | Haus der Wissenschaft

In a maximum of ten minutes, the SE²A researchers will give their best to present their research topic in an understandable and exciting way to get the audience on their side.

[Read more](#)



SE²A Paper of the Month May 25, 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.



ILA Berlin June 22- 26, 2022 | Berlin

SE²A is presented this year at ILA Berlin. You can meet with SE²A scientists in the Gemeinschaftschalet "Niedersachsen Aviation". If you are interested please contact the SE²A managing office.



Prof. Merino-Martinez at "Faszination Akustik" July 20, 2022 | TU Braunschweig & online

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International Summer School for Advanced Sustainable Aviation Technologies August 1 – September 2, 2022 | online & TU Braunschweig

The Summer School will take place from 01 August to 02 September 2022 in Braunschweig and targets Master students of any discipline from TU Braunschweig, Tampere University, or TU Delft with a strong interest in sustainable aviation technologies.

[Read more](#)



Joint SE²A Retreat September 12-14, 2022 | Warberg

This year the SE²A Symposium and the Internal Cluster Review is combined in our joint SE²A Retreat.

[Read more](#)



AIAA SciTech Forum and Exposition January 23–27, 2023 | National Harbor, MD & Online

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Imprint

SE²A - Sustainable and Energy- Efficient Aviation

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