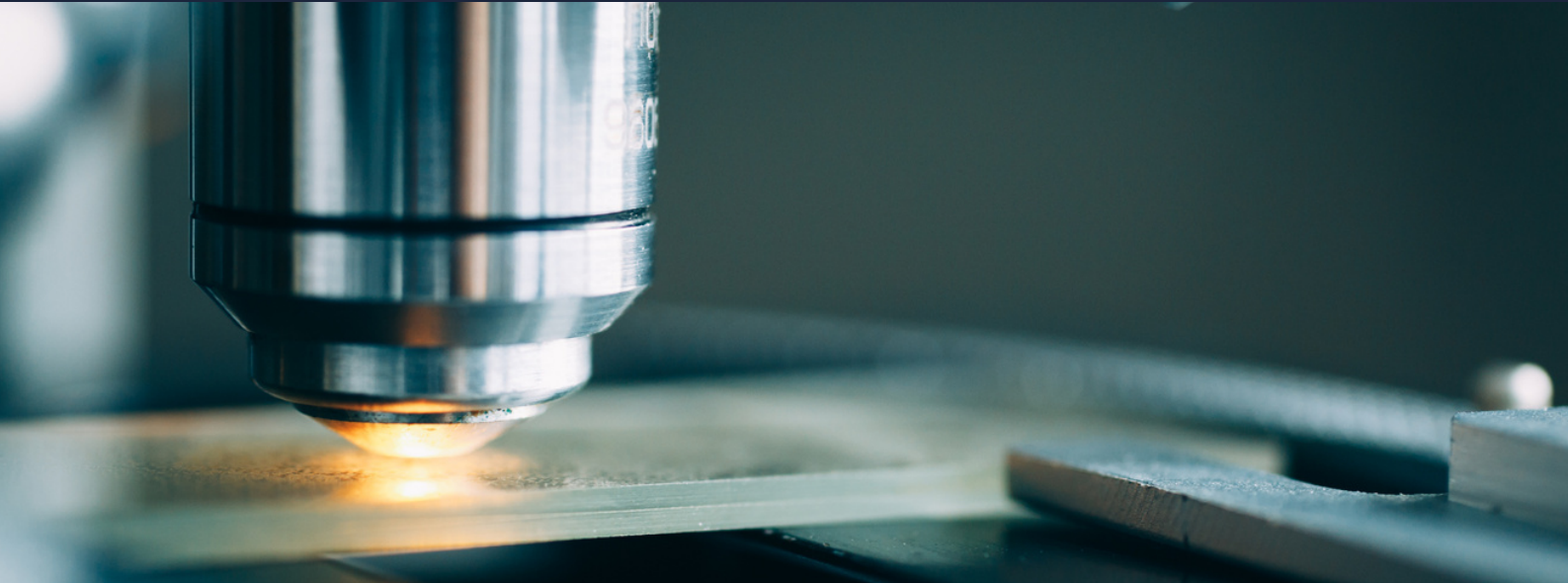


RLS-SCIENCES

WINTER EDITION



RLS-SCIENCES WINTER

1 DECEMBER, 2023

The RLS-Sciences network has been working steadily since the 2023 RLS-Sciences Digital Week, co-hosted by Shandong and Bavaria. The third edition of the RLS-Sciences Digital Week featured a spotlight on Shandongese researchers, in recognition of Shandong's hosting of the 11th Regional Leaders' Summit. This "highlight" was a new model for the Digital Week, and proved to be an effective way to engage more deeply with a particular regional research ecosystem.

Following the Digital Week, each of the research groups continued their own work, much of which was enriched by the April exchanges. These included the forthcoming White Paper on federated learning and analysis from RLS-Digital Health and the RLS-Energy Network joint proposal. In October, the new "highlight" model was applied in the 2023 RLS-Sciences Funding Workshop, with a spotlight on Québec funding opportunities, as well as a panel discussion with researchers from three regions who shared their experiences applying for funding with RLS-Sciences partners.

This newsletter includes an overview of the 2023 RLS-Sciences Digital Week and 2023 Funding Workshop, a section on awards and funding won by RLS-Sciences members in recent months, and updates on what is next in the network. Happy reading!

- Fiona Rumohr, Bavarian RLS-Sciences Management Team

RLS-SCIENCES WINTER SPECIAL NEWSLETTER

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2023 RLS-SCIENCES DIGITAL WEEK

The 2023 RLS-Sciences Digital Week took place from 24 – 28 April, 2023, under the theme “Shandong in RLS-Sciences: Forward from Herrsching”. The Digital Week this year was co-hosted by Shandong and Bavaria, with a special focus on Shandong. This marked the third iteration of the Digital Week, and the researchers exchanged on themes which were in continuity with the work undertaken at the RLS-Sciences Overall Conference in Herrsching in 2022.

As in previous years, the network met virtually for two hours each day on a different topic. Altogether, around a 100 participants from the RLS partner regions joined to listen to over 40 speakers who presented on new materials for aerospace and energy production, international projects on green hydrogen and artificial photosynthesis, clinical cooperation projects on machine learning and big data in healthcare, modelling for the future of regional air mobility, Earth observation missions to generate much-needed data on environmental changes, and more.

The Digital Week represents a key opportunity for the RLS-Sciences network to expand to include new partners, new speakers, and new participants, and this year with a particular focus on Shandong. All together, 17 researchers and experts from Shandong presented across the five days, and more joined as part of the virtual audience. This dedicated opportunity for the Shandong scientific community to present their research strengths and trends in their province was simultaneously a chance for RLS-Sciences partners from other regions to learn more about the Shandong research and development ecosystem. On Friday, talks focusing on the RLS-Sciences themes in Shandong province were given, including a high level presentation by Shandong Scientific Coordinator Prof. Hetong Yang which focused on the role of the Shandong Academies of Science as key drivers of research and international cooperation in science.

As researchers exchanged, it became clear that the regions share many of the same challenges, albeit with regional specificities, on Earth observation, artificial intelligence, future fuels, and mobility. Partners in all groups also noted that data and models can create key insights, and more so when data is shared, whether for comparison or integration.

“Shandong Province was very pleased to co-host the RLS-Digital Week this year. The 2023 RLS-Sciences Digital Week provided excellent outcomes which the Scientific Coordinator for Shandong, Prof. Yang Hetong, presented in September during the 11th Regional Leaders Summit, which was hosted by Shandong. We look forward to further multilateral exchange in RLS-Sciences with our regional partners.”

– Guo Xiaohong, Shandong Administrative Coordinator

The Digital Week allowed for the research groups and the Overall Management Team to come together, and provide momentum for further engagement in the following months, including follow-up regional science activities hosted by Shandong such as the International Forum & Youth Summer School on Renewable Energy, the Digital Health Forum, and the International Application Forum on Small Satellites.

The Digital Week will return for a fourth edition in 2024.



Image Credit:

WKS Bayern-Québec/Alberta/International,
2023

RLS-SCIENCES FUNDING WORKSHOP

On Friday, 6 October, the RLS-Sciences Funding Workshop 2023 – Spotlight on Québec was held online. Current and upcoming opportunities were showcased to spur inspiration for new collaborative efforts out of the five RLS-Sciences research groups. In recognition of the 3rd RLS-Sciences Overall Conference in Québec next year, a special “Spotlight on Québec” section featured speakers from the Fonds de recherche du Québec – Nature et technologies and from the Ministère de l’Économie, de l’Innovation et de l’Énergie du Québec. Taking advantage of the wealth of experiences in the RLS-Energy Network in applying for funding with RLS-Sciences partners, a panel discussion showcased the different kinds of models developed by the researchers to integrate partners or to combine multiple funding programs. The workshop was recorded to serve as a reference for the network, and has been added to the RLS-Sciences Resource Library.

Funding has always been a key topic in RLS-Sciences. Since 2016, part of the infrastructure supporting the network has included the RLS-Sciences Funding Database. In 2021, the first RLS-Sciences Funding Workshop was hosted virtually, and dedicated sessions for the RLS-Sciences research groups have also been part of this support in recent years. These support efforts have been led by Bavaria, with support from partners in the RLS-Sciences Overall Management group in all partner regions.

The RLS-Energy Network in particular has a proven track-record with external funding calls, with researchers winning over 15 million EUR from national and international funding agencies in the last four years for projects involving their RLS-Sciences partners from six regions.

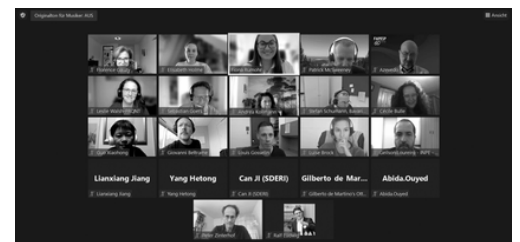


Image Credit:
WKS Bayern-Québec/Alberta/International, 2023

Review the RLS-Sciences Funding Database [here](#).

RLS-SCIENCES CONGRATULATES:

ENERGIEINSTITUT WINS UPPER AUSTRIAN STATE PRIZE FOR INNOVATION FOR “HEATHIGHWAY”

The Upper Austrian State Prize for Innovation awards were held for the 30th time in early November 2023. First place in the category “Research” went to the [HeatHighway project](#) led by the Energieinstitut at the JKU Linz. In the project, a total of 17 project partners are investigating supra-regional heat transmission networks, with a focus on the use of multiple waste heat sources. HeatHighway aims to develop an interdisciplinary toolbox for heat transmission network implementation, anticipate the medium-term use of waste heat from innovative processes, develop a cost-effective pipe system, and then create a “lean pipe prototype”. The Upper Austrian State Prize for Innovation is awarded in three categories annually: SMEs, Large Companies, and Research Institutions. The first place winners receive 4000 EUR from the Economics and Research Department of the State of Upper Austria.



Image Credit:
Upper Austrian State Prize for Innovation, 2023

The [Energieinstitut an der JKU Linz](#) is a partner in the RLS-Energy Network.

PROF. MICHAEL UDER AND TEAM WIN GERMAN FUTURE PRIZE

The director of the Radiology Institute at Erlangen University Hospital, Prof. Michael Uder, has been nominated for the Deutsche Zukunftspreis (German Future Prize) 2023 along with his two teammates, Dr. Stephan Biber and Dr. David Grodzki, from Siemens Healthineers. They developed Magnetom Free, a low-field strength magnetic resonance imaging (MRI) platform. The Magnetom Free system requires only 0.7L of helium (compared to 1000L for a regular MRI), has a low field strength compensated by artificial intelligence, is less than 2 meters high and weighs less than 3 tons, has a larger patient opening, and is easier to use. This innovation aims to improve the accessibility of MRIs worldwide, and especially into new areas. Dr. Sebastian Bickelhaupt, Lead Scientist for RLS-Digital Health, was responsible for carrying out the first worldwide study and the resulting first publication with the new device. The Deutscher Zukunftspreis has been awarded annually since 1997 and honours projects that, based on excellent research, lead to application- and thus market-ready products and create jobs.



Erlangen University Hospital is a partner in RLS-Digital Health.

PROF. KLAUS SCHILLING AWARDED IAF FRANK J. MALINA MEDAL

On the occasion of the 74th International Astronautical Federation Congress, Prof. Klaus Schilling was awarded the Frank J. Malina Astronautics Medal 2023. In the space sector, the medal is awarded for innovative research and commitment to education. Prof. Schilling's practical approach to involving students in space research, especially the construction of satellites was highlighted alongside his work in interplanetary missions including Cassini/Huygens and Rosetta, command and control problems in aerospace, and small satellites, and small satellite formations. His ability to lead his students to great achievements were cited in the award, such as the launch of Germany's first pico-satellite UWE-1, and NetSat.



Prof. Klaus Schilling at the **Zentrum für Telematik** is the Lead Scientist of RLS-Small Satellites.

PROF. YOSHUA BENGIO WINS GERHARD HERZBERG CANADA GOLD MEDAL

Prof. Yoshua Bengio, scientific director of the Montreal Institute for Learning Algorithms and professor at Université de Montréal, is the 2023 recipient of the Herzberg Canada Gold Medal for Science and Engineering from the Natural Sciences and Engineering Research Council of Canada (NSERC). Prof. Bengio's work in deep learning, artificial intelligence, including applications for speech recognition, computer vision, and natural-language modelling were cited in the award. The prize, which includes a grant of up to 1 million CAD to use for personal university-based research, is awarded annually to someone "whose body of work, conducted in Canada in the natural sciences or engineering, has demonstrated persistent excellence and influence".



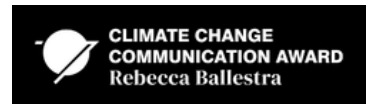
Université de Montréal is a partner in RLS-Digital Health.

RLS-SCIENCES CONGRATULATES:

CLIMATE CAMPAIGNERS IN TOP 25 FOR 2023 CLIMATE CHANGE COMMUNICATION AWARD

Led by the Energieinstitut an der JKU Linz, Climate CAMPAIGNERS is a Horizon 2020 project which includes partners in Bavaria, Québec, Upper Austria, and Western Cape. The project, which focuses on behaviour change and citizen engagement, encourages citizens, especially those in participating "lighthouse cities" to engage in "climate challenges" through a free app. Lighthouse cities include Cape Town, Western Cape, Linz, Upper Austria, and both Trois-Rivières and Victoriaville in Québec. CAMPAIGNERS has been listed as one of the top 25 projects nominated this year for the CMCC Climate Change Communication Award. The award looks at innovative projects and initiatives that "deliver engaging messages and communicate climate change in education, advocacy, media production and social engagement activities". More than 307 projects were submitted this year.

The Energieinstitut an der JKU Linz is a partner in the RLS-Energy Network.



RLS-SCIENCES CONGRATULATES:

LA VALLÉE DE LA TRANSITION ÉNERGÉTIQUE IS THE NEWEST QUÉBEC INNOVATION ZONE

Since 2022, the government of Québec has been working to develop "Innovation Zones". The government defines these as "geographical areas where stakeholders in research, industry, and entrepreneurship come together and collaborate to create a culture of innovation, while also showcasing sustainable competitive advantages of the area of region". The newest Innovation Zone is "La Vallée de la Transition Énergétique" (Energy Transition Valley) or VTE. VTE brings together three municipalities, Bécancour, Trois-Rivières, and Shawinigan, to create an integrated ecosystem conducive to innovation and research on the energy transition. Key topics are batteries and hydrogen, with the entire value chain of both in focus, as well as the potential synergies between the two. Université du Québec à Trois-Rivières, the Centre national en électrochimie et en technologies environnementales, and the Centre de métallurgie du Québec are among the key partners. This Innovation Zone will also capitalize on new collaborations with leading researchers across Québec, particularly in the field of batteries. The efforts will work to connect the various complementary assets and expertise possessed by these three cities to accelerate the development of the battery industry, transport electrification, green hydrogen, and industrial port decarbonization.



Prof. Simon Barnabé at Université du Québec à Trois-Rivières is Québec Lead Scientist for the RLS-Energy Network.

RLS-DIGITAL HEALTH WHITE PAPER



The RLS-Digital Health group will soon be releasing their first joint output, a White Paper. The title is “Federated Learning and Analysis for Collaborative Research in Healthcare at a National and International Scale”. A key component of the White Paper was qualitative interviews with high-level experts out of the RLS regions.

The White Paper covers data-driven research in healthcare, federated learning and analysis in healthcare, national and international federated learning and federated analysis platforms across the RLS partner regions, and conditions for success of federated learning and federated analysis for data-driven international research.

The White Paper has been coordinated by Québec expert Dr. Cécile Petitgand, and supported financially by the Fonds de recherche du Québec- Nature et technologies and Consortium Santé Numérique.

Fonds de recherche
Nature et
technologies
Québec



CANADA TO JOIN HORIZON EUROPE

Canada and the European Union have completed negotiations for **Canada's association to the EU flagship funding programme, Horizon Europe**. Further information will be shared in early 2024.

RLS-SCIENCES DIGITAL WEEK 2024

RLS-Sciences is pleased to announce that the RLS-Sciences Digital Week will **return for its fourth edition in 2024**. Created in the pandemic to ensure continuity and accessibility for the RLS-Sciences network, RLS-Sciences Digital Weeks comprise 2 hour sessions each day for five days, covering the different RLS-Sciences research groups and creating virtual spaces for the groups to exchange in their thematic area in an open format with the rest of the RLS-Sciences network. Bavaria hosted the first and second Digital Weeks in 2021 and 2022 with the themes “Data as a resource for the regions” and “Sustainable and resilient regional recoveries”, respectively. The third Digital Week was co-hosted by Shandong and Bavaria, under the theme “Shandong in RLS-Sciences: Forward from Herrsching”.

The 2024 RLS-Sciences Digital Week is planned once again for April, and dates will be announced soon!

RLS-SCIENCES OVERALL CONFERENCE 2024

In 2024, the **third RLS-Sciences Overall Conference will be hosted by Québec**. The RLS-Sciences Overall Conferences were initiated to create dedicated opportunities for the RLS-Sciences network to meet in person between the political conferences, which are also held biennially. The first was held in 2019, and was co-hosted by FAPESP and Inpe in São José dos Campos, São Paulo. The second was held in 2022, and was hosted by Bavaria in Herrsching.

In 2018, Québec was host to the 9th Regional Leaders' Summit, where RLS-Sciences was presented to the Heads of Government, and the Québec Joint Declaration on Energy Transition mandated the RLS-Energy Network to work on best practices for regional energy transitions.