



# RLS-SCIENCES

SPRING SPECIAL EDITION

## RLS-SCIENCES SPRING

15 MARCH, 2024

Following an annual holiday break in many regions, RLS-Sciences partners have been hard at work preparing for their joint activities in 2024.

This year, RLS-Sciences activities will comprise a mix of classic and new, ranging from well known events like the RLS-Sciences Digital Week and the RLS-Sciences Overall Conference to new formats like the RLS-Sciences Explore Session. These formats each provide different kinds of inputs, cover various themes, and offer new chances for researchers out of the seven regions and the five research groups to connect and identify possibilities for joint outputs. The first of these was held on 12 March, with the first virtual RLS-Sciences Explore Session on “Space, Earth, and Health”.

We are pleased to share that there have already been new outputs since the last newsletter, this time from RLS-Digital Health. We invite you to read about the White Paper, and discover some of the upcoming plans for 2024 for RLS-Sciences as a whole in the following pages.

- Fiona Rumohr, Bavarian RLS-Sciences Management Team

RLS-SCIENCES SPRING  
SPECIAL NEWSLETTER

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## RLS-DIGITAL HEALTH WHITE PAPER

The first joint publication from RLS-Digital Health is now online. The White Paper, which is titled "**Federated Learning and Analysis for Collaborative Research in Healthcare at a National and International Scale**", is a uniquely RLS-Sciences based output as it includes insights from 15 expert interviews with researchers and practitioners from Bavaria, Georgia, Québec, São Paulo, Shandong, and Upper Austria, and case studies of existing projects out of the RLS regions. It covers four key areas: 1) Data-driven research in healthcare: potential and challenges, 2) Federated Learning and Analysis in Healthcare: potential and challenges, 3) Focus on National and International FL/FA platforms across RLS-Sciences' regions, 4) Conditions for success of FL/FA for international research.

Coordinating author Dr. Cécile Petitgand from Québec, shared: "This collective paper on federated learning stands as a demonstration to the significance of collaboration and alignment in pursuing the goal of augmenting decentralized data access for the enhancement of population health. In an era where states and organizations tend to compete rather than collaborate with one another, the endeavours of RLS-Sciences collaborators underscore a pivotal truth: it is only through unity that we can achieve both far-reaching and bold advancements in healthcare". The first exchanges on the eventual paper took place at the 2nd RLS-Sciences Overall Conference in 2022 in Herrsching, Bavaria. The White Paper was produced with the financial support of the Fonds de recherche du Québec- Nature et technologies and the Consortium Santé Numérique at the Université de Montréal. Since the launch, which took place at the Christmas Science Café, hosted by the Scientific Coordination Office Bavaria-Québec/Alberta/International, the White Paper has been viewed 783 times and downloaded 562 times (at the time of writing).

Find the White Paper (open access) [here](#) (English) and [here](#) (French).

Learn more about RLS-Digital Health [here](#).



## KICKOFF FOR "DANUBE INDEET" PROJECT

The project "Danube Indeet: Integrated and decentralised concept thinking energy and transport systems based on renewable energy in the Danube region" was launched on 5 and 6 March in Ruhstorf an der Rott in Bavaria. Indeet is funded via the Interreg program with 2.6 million EUR from January 2024 until June 2026. The consortium aims to create an integrated energy and mobility concept, using electric mobility charging and green hydrogen to balance the energy grid and to increase efficiency of fluctuating renewable electricity production. Through partnering with municipalities, Indeet aims to create a model which can be applied across different regions. The consortium involves 12 partners including another RLS-Energy Network partner - the Energieinstitut an der JKU Linz in Upper Austria, and 9 associated partners.

The project is coordinated by the [Technology Centre for Energy \(TZE\)](#) at the Landshut University of Applied Sciences. TZE is a partner in the [RLS-Energy Network](#).

## CALL FOR ABSTRACTS FOR 2ND MUNICH HYDROGEN SUMMIT

The second Munich Hydrogen Symposium will take place from 21-24 October, 2024 in Garching, Bavaria. The [call for abstracts](#) has been extended until 17 March. There are four main areas for submission, although the conference is generally open to any abstract relating to hydrogen. These areas are: 1) hydrogen system studies, 2) hydrogen production, 3) power-to-x and circular economy, and 4) hydrogen utilization. The summit is partnering with *Energy Advances* to publish a dedicated Themed Collection featuring a selection of articles from the conference. The Munich Hydrogen Symposium is part of the Future Lab REDEFINE H2E, which includes members of the RLS-Sciences Energy Network and is coordinated by Dr. Sebastian Fendt at the Technical University of Munich. Learn more about REDEFINE H2E [here](#).

## RLS-SCIENCES EXPLORE SESSION: SPACE, EARTH, AND HEALTH

RLS-SCIENCES EVENT:

On 12 March, the first virtual RLS-Sciences Explore Session was held on “Space, Earth, and Health”. Experts from RLS-Sciences partner institutions, together with invited external guest speakers contributed on the bi-directional exchange of research in and for space and research on Earth, especially focusing on health. Participants also heard about the Bavarian Space Program.

Dr. Annie Martin from the Canadian Space Agency highlighted some of the challenges with health in space in longer and further missions, like communication delays, isolation, resupply, and the lack of evacuation opportunities and showcased projects being undertaken to work on these



*Credit: WKS Bayern-Québec/Alberta/International, 2024*

challenges while addressing health applications on Earth simultaneously, such as in the far North. In the Dialogue portion of the session, moderated by Dr. Judith Buchheim, experts including Prof. Yves Joannette, Prof. Hélène Girouard, Prof. Alexander Choukér, and Prof. Gisella Detrell exchanged on a range of aspects. Contributors emphasized how research on aging in particular can offer insights into how time in space, which can be compared to accelerated aging, impacts different bodily systems and vice-versa. The need for intelligent systems and next generation AI which is robust, reasoned, and responsible, to support not only longer term extra-terrestrial missions but also people on Earth who are more isolated was another key takeaway. Space analogues on Earth were highlighted as a way to explore the many different variables which impact health in space in a more focused way, tackling issues like isolation, bed rest, and other situations which are also relevant for many terrestrial patients. A major theme throughout was the necessity and the opportunity for interdisciplinary work in the field. Janice Bailey, Scientific Director of the FRQ-NT, stated: “Intersectoral and transdisciplinary research is often focused on addressing complex, real-world problems, such as environmental degradation or global health crises, or sustainable development. By involving experts from various sectors, transdisciplinary research can generate practical solutions with tangible benefits for society.”

RLS-Sciences Explore Sessions are designed to “explore” issues which have cross-topic implications. This edition brought together [RLS-Digital Health](#) and [RLS-Global Aerospace Campus](#).

## 2024 RLS-SCIENCES DIGITAL WEEK

In 2024, the RLS-Sciences Digital Week will be held from 15-19 April, and will be held under the theme "**Science Adoption in Innovation Ecosystems at the Regional Level**". The RLS-Sciences Digital Week, inaugurated in 2021 during the COVID-19 pandemic, has now become a staple activity for the RLS-Sciences network to ensure continuity and accessibility for researchers from all seven regions and all five research groups. This year's theme was developed to create a bridge between the virtual RLS-Sciences Digital Week and the in-person RLS-Sciences Overall Conference, which will be held in September at the invitation of Québec.

The Digital Week will provide once again an opportunity for cross-project engagement, as the Digital Week sessions are open to all RLS-Sciences researchers. Key applications of "Science Adoption in Innovation Ecosystems at the Regional Level" will include inputs on how to transfer science not only to technology or economy but also society, how to ensure new scientific outcomes can benefit society, how to support their integration, as well as how to train different actors on the appropriate use of new innovations.

### RLS-SCIENCES DIGITAL WEEKS

2021

*Data as a Resource for the Regions*

2022

*Resilient and Sustainable Regional Recoveries*

2023

*Shandong in RLS-Sciences: Forward from Herrsching*

2024

*Science Adoption in Regional Innovation Ecosystems*

## 2024 RLS-SCIENCES OVERALL CONFERENCE

From 15-18 September, 2024, the 3rd RLS-Sciences Overall Conference will be held at the invitation of Québec. First hosted in 2019 by São Paulo and then in 2022 by Bavaria, this will be the third iteration of the RLS-Sciences Overall Conference. Québec most recently played host to RLS-Sciences in 2018 in the frame of the 9th Regional Leaders' Summit, to which RLS-Sciences was invited to contribute.

The four days will represent an important opportunity for partners to meet in-person. While RLS-Sciences research groups meet regularly online, the importance of coming together for conferences has been demonstrated in the many outputs which have their origins at conferences. Some examples include the 2021 publication, "Smart Campuses: Extensive Review of the Last Decade of Research and Current Challenges", which originated from the RLS-Energy Network exchanges at the São José dos Campos conference in 2019 and the recent White Paper from RLS-Digital Health, "Federated Learning and Analysis for Collaborative Research in Healthcare at a National and International Scale"; which was sparked by discussions at the Herrsching conference in 2022.