



New University Models Innovation in Education RLS-Sciences: A multilateral and multilevel approach

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on behalf of all RLS-Sciences members

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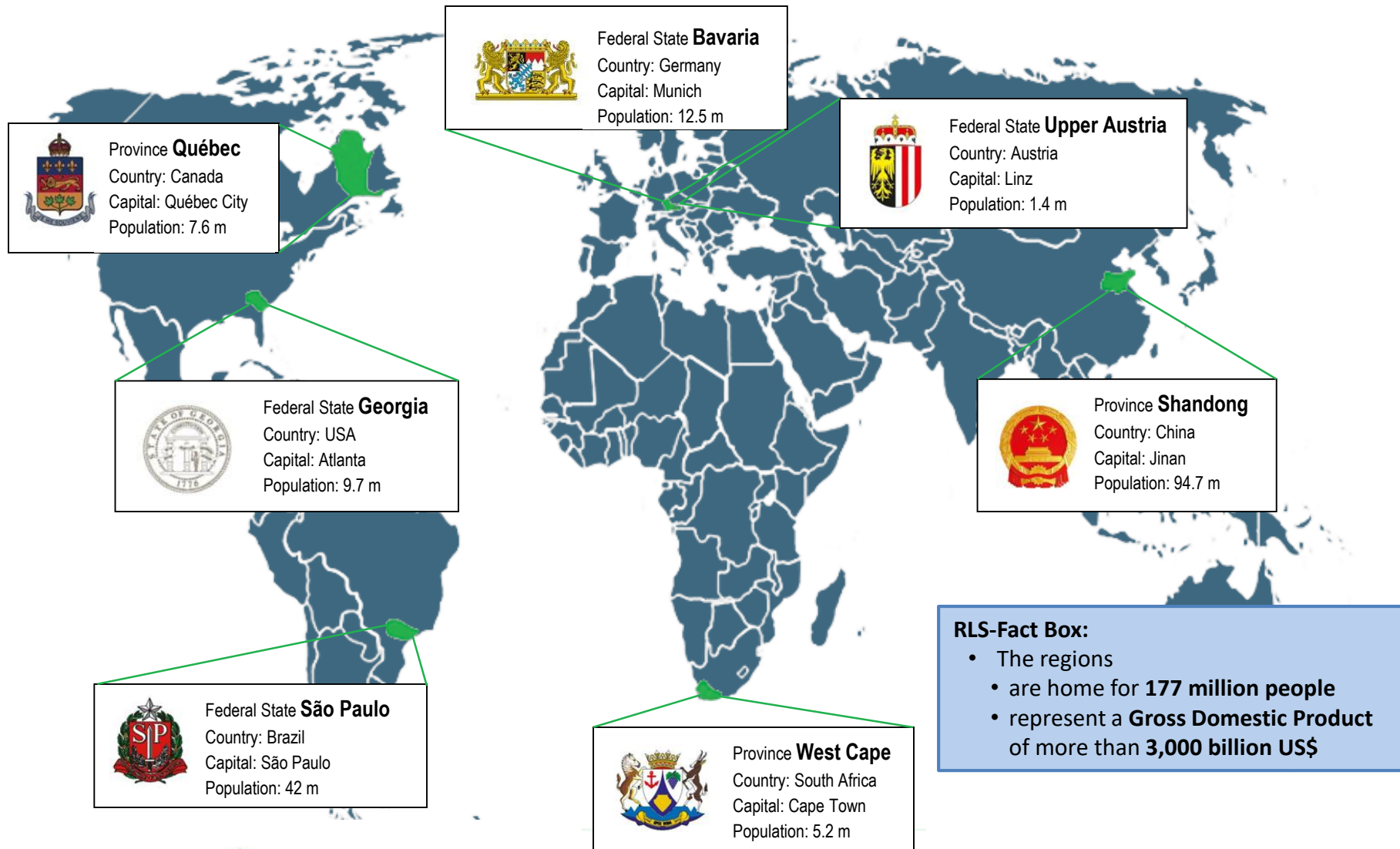
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Introduction - The Regional Leaders' Summit (RLS)





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- The RLS is a high level forum comprising seven regional governments (federal state or provincial), which together represent approximately 177 million people across five continents.
- Between the partner regions, more than 600 projects have been implemented on a bilateral and multiregional level.
- Under the principle "**policy for generations**" the RLS is working on political perspectives and strategies for a sustainable development of society, economy and the environment.
- The RLS is a regional response to the challenges of the globalized world in the 21st century.
- Since 2002, the heads of government for these regions held political summit biennially to offer an opportunity for political dialogue.



Introduction - The Regional Leaders' Summit (RLS)

Previous Regional Leaders' Summits



9th summit, May, 2018, Québec, Canada
Topic: **"Energy Transition – Towards a Low Carbon Economy"**



- **1st summit, January 30-31, 2002, Munich, Germany**
Topic: **"Politics for Generations"**



- **2nd summit, December 9-10, 2004, Québec, Canada**
Topics: **"Youth"** and **"Technological Innovation"**



- **3rd summit, July 11-12, 2006, Linz, Austria**
Topics: **"Renewable Energy and Energy Efficiency"** and **"Education and Youth"**



- **4th summit, August 6-7, 2008, Jinan, China**
Topics: **"Resource-efficient society (energy and climate politics)"** and **"Public health care and provision"**



- **5th summit, September 27-29, 2010, Cape Town, South Africa**
Topics: **"Integrated Transport"** and **"Food Security"**



- **6th summit, April 11-12, 2012, São Paulo, Brazil**
Topic: **"Sustainable Energy and Development"**



- **7th summit, June 2-3, 2014, Atlanta, USA**
Topics: **"Global changes in logistical supply chains"** and **"Leveraging major sporting events for economic development"**



- **8th summit, July 14-15, 2016, Munich, Germany**
Topic: **"Digitalization and Innovation"**



RLS Sciences

- Within the framework of RLS, RLS-Sciences aims at generating and supporting academic, scientific, and technological exchanges, as well as the initiation of multilateral research projects.
- In all ongoing research projects, as well as at the overall coordination level of RLS-Sciences, **promotion of education is a target.**

- **GOALS:**

Internationalize

Facilitate and support the development of international research partnerships between scientists in RLS regions

Innovate

Create a framework with which researchers from RLS regions can develop new innovative ideas together

Invest

Support RLS scientists by finding funding opportunities for their RLS projects



RLS Sciences

- RLS-Sciences seeks to leverage the unique composition and strengths of the RLS network to support bilateral and multilateral scientific research within and between the RLS regions.
- RLS-Sciences had **four research and development themes** in 2016, which were carefully chosen to reflect the best potential for scientific cooperation between the seven RLS regions:

Digitization



RLS-Digitization is assessing the effects of digital integration through "Beyond Industrie 4.0."

Aerospace



RLS-Campus Aerospace is supporting the development of young aerospace researchers.

Small Satellites



RLS-Small Satellites is exploring new possibilities for Earth observation and telecommunications.

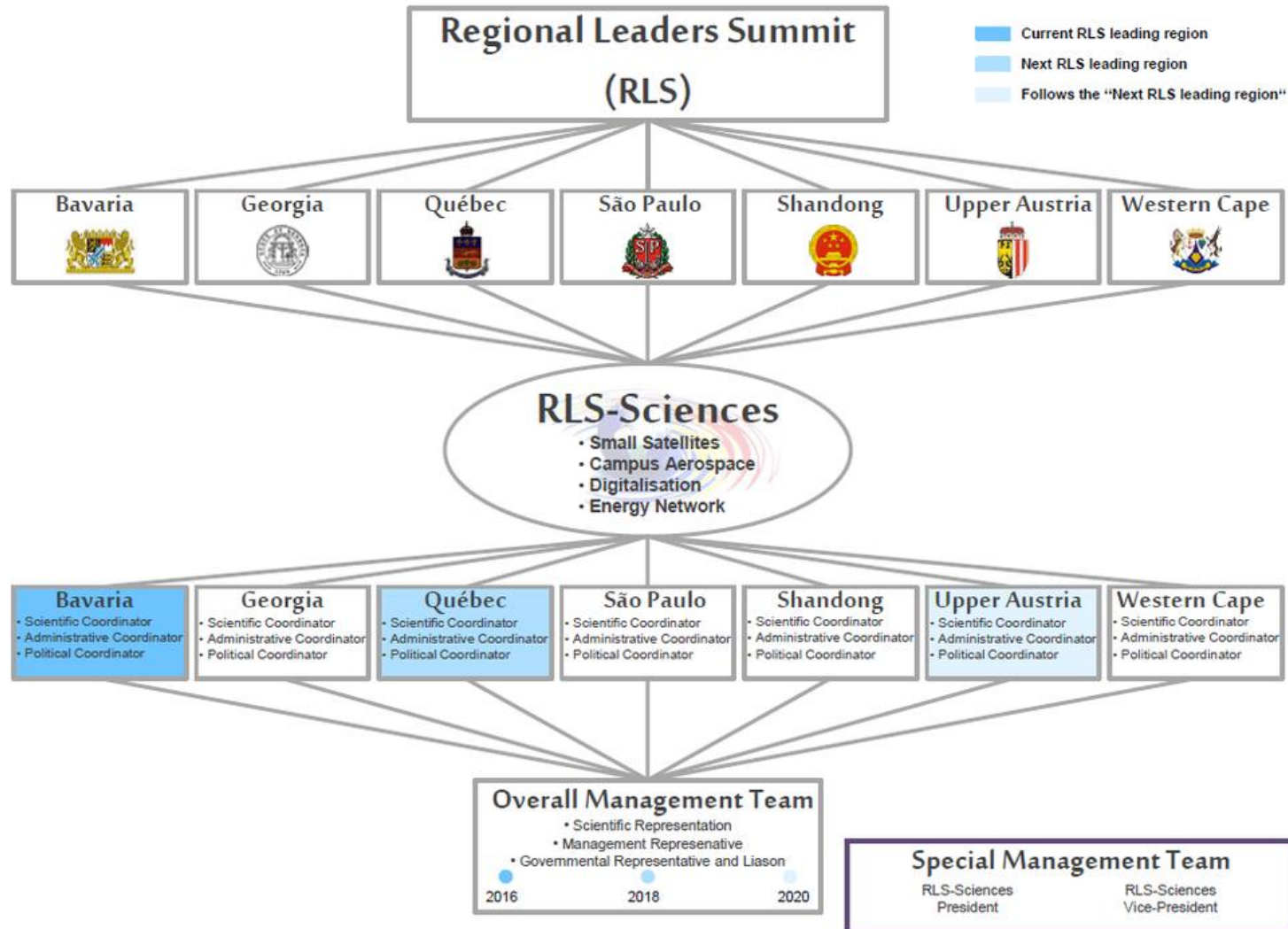
Energy



RLS-Energy focuses on energy innovation across the RLS regions, through key themes (biofuels, energy efficiency, energy storage and conversion, waste-to-energy)










RLS Sciences: Multilateral & Multilevel Structure





RLS Sciences: Multilateral & Multilevel Structure

RLS Sciences Management Structure 2016-2017

	Bavaria 	Georgia 	Québec 	São Paulo 	Shandong 	Upper Austria 	Western Cape 
Political Coordinator	Gunnar Wiegand	Mary Waters	Michel Lafleur, Alexandra Berranini	Ana Paula Fava	(Mr) Zhou Jialun	Margot Nazzal	Dr. Laurine Platzky
Scientific Coordinator	Dr. Florence Gauzy with the Bavarian project leaders	Steven Justice	Prof. Maryse Lassonde with the Québec project leaders	Prof. Gilberto Jannuzzi with Dr. Marilda Bottesi	(Mr) Li Chengbin	Dr. Sebastian Goers	tbc
Administrative Coordinator	Dr. Florence Gauzy	Abby Turano	Hasna Rouighi, Patrick Barrette	Fernanda Borges Carrer	(Mr) Li Chengbin, (Ms.) Guo Xiaohong	Dr. Christian Kolarik	Roderick Thyssen,

- **RLS-Sciences President and Vice-President**

Professor Gilberto Jannuzzi (São Paulo), president; Professor Maryse Lassonde (Québec), vice president

- **Overall management team**

Dr. Sebastian Goers (Upper Austria), **scientific** representative; Steven Justice (Georgia), deputy

Dr. Florence Gauzy (Bavaria), **management** partner; Patrick Barrette (Québec), deputy; Dr. Christian Kolarik (Upper Austria), deputy








Dr. Laurine Platzky (Western Cape), **governmental** representative and liaison to the steering committee; Gunnar Wiegand (Bavaria), deputy; Zhou Jialun (Shandong), deputy





RLS Sciences: Lead Scientists

- Lead Scientists per project and region (as of June 2017)

	Bavaria 	Georgia 	Québec 	São Paulo 	Shandong 	Upper Austria 	Western Cape 
Renewable Energy Network	Prof. Jürgen Karl	(tbd)	Prof. Maryse Lassonde	Prof. Gilberto Jannuzzi	Prof. Li Xuebing	Dr. Sebastian Goers	Dr. Eugène van Rensburg
Small Satellites	Prof. Klaus Schilling	Prof. Brian Gunter	Prof. Giovanni Beltrame & Dr. Jean de Lafontaine	Prof. Geilson Loureiro	Zhang Yutu & Feng Zhan	Prof. Kurt Schlacher	Prof. WH Steyn
Campus Aerospace	Prof. Klaus Drechsler & Dr. Eva Rogowicz-Grimm	Prof. Dimitri Marvis	Prof. Giovanni Beltrame	Prof. Euclides de Mesquita Neto	Zhang Yutu & Feng Zhan	Prof. Kurt Schlacher	Prof. WH Steyn & Dr. Jacobus Engelbrecht
Expert dialogue on digitalization	Prof. Manfred Broy	(tbd)	Prof. Gilles Savard	Prof. Euclides de Mesquita Neto	Prof. Yimin Yang	Manuel Brunner	(tbd)



RLS Sciences: Campus Aerospace

About RLS-Aerospace



- Aerospace is a key economic driver, and a research priority in the RLS regions. This field is extremely competitive worldwide. Continuous innovation is required to remain operational under increasing financial and environmental constraints.
- Qualification of the workforce has proven to be of crucial importance. Different teaching approaches exist in the RLS group.
- There is a strong understanding among the RLS partners that sharing this regional expertise in teaching aerospace can lead to enhanced teaching and training programs that will benefit all RLS regions.



RLS Sciences: Campus Aerospace

The project “Campus Cooperation in Aerospace”

- The lead partner is Prof. Dr.-Ing Klaus Drechsler with Munich Aerospace e.V. and the Technische Universität München.
- In order to strengthen the specialized training of aerospace engineers, researchers and experts from industry are getting together to build a new training platform with virtual and in-person components.
- The **RLS Campus Aerospace project aims to create a leading teaching platform in aerospace.** The Global Aerospace Campus improves the visibility of aerospace research activities within the RLS Network and internationally, helping to release research results faster and reducing the distance between teaching and research.

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Technische Universität München

Georgia
Tech

CRIAQ



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UNIVERSITÉ DE
SHERBROOKE



Fonds de recherche
Nature et
technologies
Québec



JKU
JOHANNES KEPLER
UNIVERSITÄT LINZ





RLS Sciences: Campus Aerospace

The project “Campus Cooperation in Aerospace”

- The first RLS Summer School, organized by Munich Aerospace, successfully took place in June 2016 in Herrsching, Bavaria.
 - 9 PhD candidates from 5 RLS regions joined the summer school titled “**Flying Robots: Concepts and Challenges of Aerial Autonomy**”. Almost 100 speakers and guests from science and industry attended.
- Long-term prospects of the Global Aerospace Campus:
 - Developing an **RLS Aerospace Online Study Programme** with attendance phases
 - Establishment of an alternating **RLS Summer School Event**
 - Offering a **global exchange and mobility programme** for students and professors
 - **Internships** with industrial partners



**MUNICH
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RLS Sciences: Campus Aerospace

- At this year's Munich Aerospace Summer Summit (MASS) in June, international scientists and industry representatives met and discussed aerospace technologies regarding the watchword "**Green Aerospace**".
- Next Global Aerospace Summit takes place in May 2018 in Montreal, 2019 in Sao Paulo

MUNICH AEROSPACE





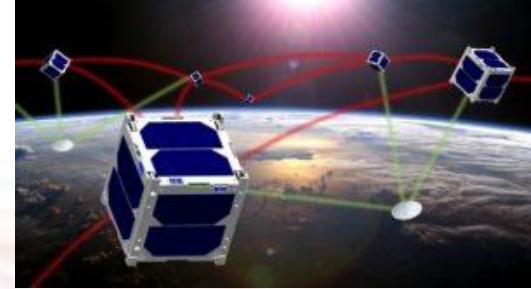
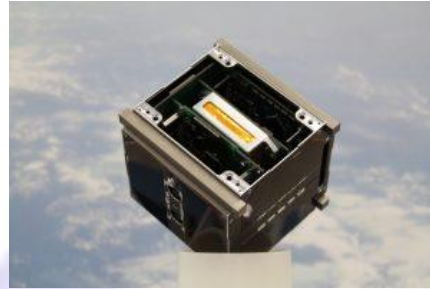
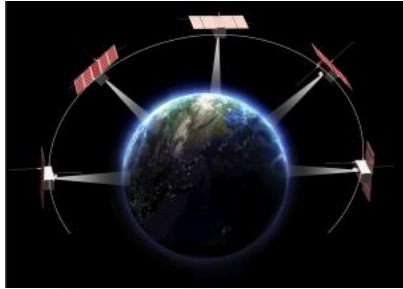
RLS Sciences: Small Satellites



- In all partner regions (Georgia, Upper Austria, Quebec, São Paulo, Shandong, Western Cape, Bavaria), universities, companies or agencies with an emphasis on space technology can be found.
- Universities from the partner regions are involved in leading edge research on pico-satellites, and already successfully operate several satellites in orbit.
- It is a symbolic perspective, when the partner regions extend their terrestrial cooperation to hightech demonstration in space to realize a system of cooperating small satellites based on technologies from the partner regions.
- Applications in Earth observation and environment monitoring will be addressed.



RLS Sciences: Small Satellites



Added value for the RLS Sciences

- The RLS regions have the necessary expertise: they can either contribute a full satellite or key components.
- Their cooperation will maintain research and training excellence in their RLS network, and provide a regional advantage in the increasing international science and innovation competition around small satellites.
- Building on their regional strengths, the RLS regions can in the mid-term help to bring a new regional technology into market for innovative 3-D Earth observation, and telecommunication (internet in space).



RLS Sciences: Small Satellites

Light weight, strong impact:

Small satellites for telecommunication and earth observation

- The lead partner for the project is Prof. Dr. Klaus Schilling (Institut für Robotik und Telematik, Universität Würzburg and the Zentrum für Telematik e.V.) in Bavaria.
- For students (both undergraduate and graduate) as well as for young researchers out of our regions, being part of this scientific project is a unique opportunity to join a network of space experts and learn more about technology, international cooperation in space, and also legal and ethical requirements in this field.
- Project's website: <https://rls-smallsatellites.org/>





RLS Sciences: The Energy Network

- The Energy Network was initiated as a follow-up to the Regional Leaders Summit meeting in São Paulo in 2012.
- Due to their unique geographical composition spanning five continents, and in accordance with their research profiles in energy, the RLS regions represent strong potential in this field.
- The Energy Network focuses on four thematic research areas:

Biofuels



Development of innovations in the field of biofuels

Storage and Conversion



Searching for new solutions for energy storage and conversion

Energy Efficiency



Collaborating on new energy efficiency research.

Waste to Energy



Creating new uses for waste to address the world's growing need for energy



RLS Sciences: The Energy Network

Activities

- The network seeks to:
 - provide privileged access to research activities undertaken by the network partners
 - generate long-term, large-scale, visible projects within the network
- These results may be achieved through
 - regular exchange of scientific information between universities, research centers, industry, and public bodies
 - identification of bi-and multilateral funding opportunities within and outside of the network
 - joint research activities and joint participation in international research programs by the regions





RLS Sciences: The Energy Network

Student Exchange Module

- To support international & multilateral mobility (network meetings, international summer schools) of researchers and students with the partner regions

An International Summer School on Renewable Energy is planned for May 2018 in Shawinigan/Quebec (QC, Canada).



[EIE-VERTECH 2017](#)
[EIE-ENR 2017](#)

Virtual working platform:

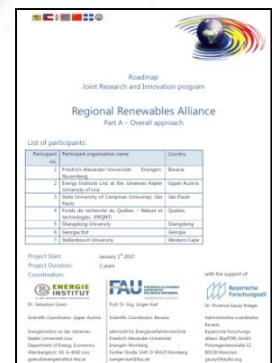
- Research topics
- News and events
- Publications
- Funding opportunities

<http://www.rls-energynetwork.org>



Roadmap “Regional Renewable Alliance”

- Objectives:** trigger new infrastructures, transnational transport and trade of renewable energy on a global scale
- Preparatory stage:** evaluating key technologies, knowledge and energy potentials
- Implementation & demonstration phase:** transcontinental demonstration projects that establish, test and evaluate new technologies





RLS Sciences: First results in education

RLS-Science Event List (selected, from 2016 on)

2016

- January 26: **RLS-Sciences** internal Bavarian Kick-Off Meeting (Munich)
- March 1: Internal **Energy Network** Meeting (Munich)
- March 31: Internal Campus **Aerospace** Meeting (Ottobrunn)
- April 5-9: Bavarian Ministerial Delegation in Georgia (Atlanta)
- April 21: First **RLS-Sciences** Teleconferences
- May 18: Internal **Small Satellites** Meeting (Munich)
- May 20: Internal **Digitalisation** Meeting (Garching)
- June 8: Internal Campus **Aerospace Summer School** Meeting (Ottobrunn)
- June 22-24: Campus **Aerospace Summer School** (Herrsching)
- July 8: rls-sciences.org and rls-energynetwork.org are published
- July 12: RLS- **Energy Network** Panel at iSEneC 2016 (Nuremberg)
- July 13: RLS-**Energy Network** Internal Meeting (Nuremberg)
- July 13: RLS-Expert Dialogue on **Digitalisation** (Garching)
- July 14: RLS Campus **Aerospace Tour** and Brainstorming Session (Garching)
- July 14: RLS-**Small Satellites** presented to the heads of government at the 8th RLS Conference (Munich)
- July 15: **RLS-Sciences** presentations at the 8th RLS Conference (Munich)
- July 15: RLS-**Small Satellites** Kick-Off Meeting (Munich)
- July 22: rls-smallsatellites.org published
- October 6: Follow-up **RLS-Sciences** teleconference


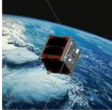

2017

- March 24-25: **Small Satellites project meeting** (Würzburg)
- April 9: Internal **Energy Network** Meeting (Québec)
- April 10: **Energy Network** participation at “Energy Day” of FRNTQ (Québec)
- June 19-28: **Energy Network** participation at “International Summer School VERTECH CITY on sustainable cities” (Québec)
- June 26-28: Summer School on Green **Aerospace** (Ottobrunn)
- June 29: Follow-up **RLS-Sciences** teleconference
- July 7: Presentation of **RLS-Sciences** at IAUP 2017 (Vienna)





RLS Sciences: First results in education

Campus Aerospace 	Small Satellites 	Energy Network 
Yearly Multilateral Summer School in Aerospace with industry involvement	Research training for participating students and young researchers	Research training for participating students and young researchers
Comprehensive joint MOOC in preparation	Student and young researcher mobility within the 7 participating regions	Student and young researcher mobility within the 7 participating regions
Internships in the private sector	Professional training in the field of space	Research internships



RLS Sciences: Innovation in education

- **RLS is not limited to a single standard model for education. Each research area (Aerospace, Small Satellites, Energy Network) is modelled in its own appropriate format.**
- **RLS-Sciences is in the process of defining a multilevel governance structure that enables greater cooperation between the political, scientific and administrative levels within RLS.**
- **Our priority is to generate cross-sectoral and cross-regional interactions that enhance science.**
- **In our multilateral research projects, graduate students and young researchers have the opportunity to deepen their academic knowledge in a global environment that is interdisciplinary, international, and practice-oriented.**

Thank you for your attention!

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RLS-Sciences



Bavaria



Georgia



Québec



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São Paulo



Upper Austria



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