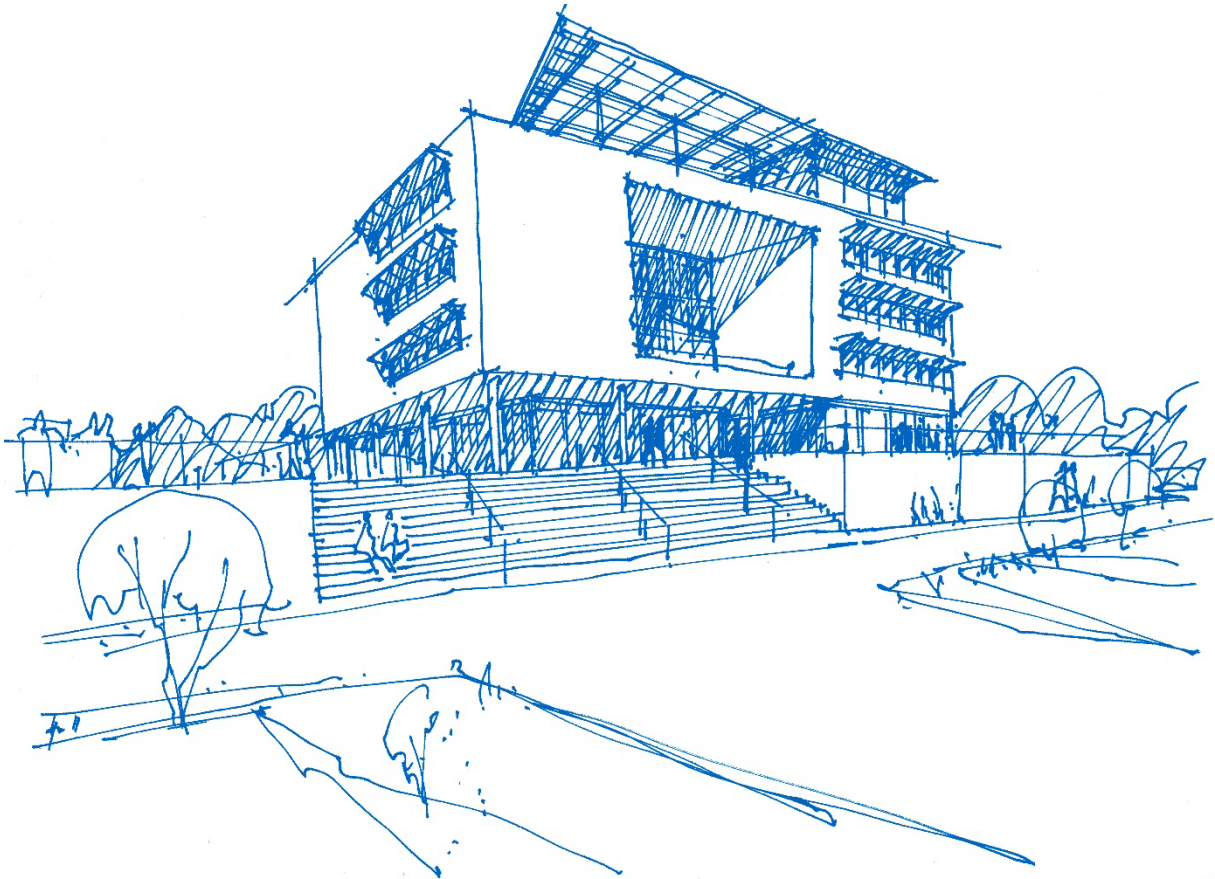


TUM Institute for Advanced Study General Assembly

April 29-30, 2024

Venue: TUM-IAS Headquarters



QR Code for Online Program
(including Zoom link)



Lichtenbergstr. 2 a, 85748 Garching, Germany

+49 (0)89 289 10550

events@ias.tum.de

www.ias.tum.de

MONDAY, APRIL 29, 2024

All times are in CEST.

12:00 – 14:00 *Registration and Lunch* *Entrance Hall & Faculty Club*

Poster Presentations | CareerDesign@TUM Postdocs *3rd floor*

* Please refer to the separate program in the conference folder.

I Director's Welcome

Auditorium, ground floor

14:00 – 14:15 Michael Molls | TUM-IAS Director

II Talks

Auditorium, ground floor

Chair: Andrea Erhardt | University of Kentucky | Anna Boyksen Fellow

14:15 – 14:45 **Simulation of Quantum Systems on High Performance Computing Infrastructures**

Örs Legeza | Wigner Research Centre for Physics
Hans Fischer Senior Fellow

14:45 – 15:15 **The Role of Bacterial Oral-Gut Translocation in Inflammatory Diseases**

Melanie Schirmer | TUM
Rudolf Mößbauer Tenure Track Professor

15:15 – 15:45 **Women in the Industry 4.0 – Current and Future in Manufacturing**

Jihyun Lee | University of Calgary
Anna Boyksen Fellow

15:45 – 16:15 *Coffee Break*

Entrance Hall

III Linde Lecture

Auditorium, ground floor

Chair: Michael Molls | TUM-IAS Director

16:15 – 17:00 **Mathematics: Key Enabling Technology for a Better World**

Wil Schilders | Eindhoven University of Technology
Hans Fischer Senior Fellow funded by the Siemens AG

IV Poster Session I

2nd & 3rd floor

17:00 – 18:00 *see page 6*

18:00 *Aperitif*

Faculty Club, 4th floor

18:30 *Dinner*

Faculty Club, 4th floor

TUESDAY, APRIL 30, 2024

All times are in CEST.

I Director's Welcome

Auditorium, ground floor

8:55 – 9:00 Michael Molls | TUM-IAS Director

II Talks

Auditorium, ground floor

Chair: Laura Herz | University of Oxford | Hans Fischer Senior Fellow

9:00 – 9:30 **From Injury to Integrity: From Biomechanics to Molecular Biology of Intestinal Wound Healing**

Philipp-Alexander Neumann | TUM
Albrecht Struppler Clinician Scientist Fellow

9:30 – 10:00 **China and the Changing International Order**

Susan Park | University of Sydney
Hans Fischer Senior Fellow

10:00 – 10:30 *Coffee Break*

Entrance Hall

III Poster Session II

1st floor

10:30 – 11:30 *see page 6*

IV Talks

Auditorium, ground floor

Chair: Piotr Tryjanowski | Poznań University of Life Sciences | Hans Fischer Senior Fellow

11:30 – 12:00 **Exploring Quantum Spin Liquids: From Majorana Fermions to Exotic Phases**

Natalia Perkins | University of Minnesota
Hans Fischer Senior Fellow

12:00 – 12:30 **Traffic State Prediction using Machine Learning and Automated Vehicle Data**

Felix Rempe | BMW Group
Rudolf Diesel Industry Fellow

V Closing Remarks

12:30 – 12:45 Michael Molls | TUM-IAS Director

Auditorium, ground floor

12:45 *Lunch*

Faculty Club, 4th floor

15:00 – 17:00

Advocates and Allies: Male Allies for Gender Equality

Instructors:

Gregory Erhardt | University of Kentucky | Hans Fischer Senior Fellow

Rolf Moeckel | TUM School of Engineering and Design

Martin Elsner | TUM School of Natural Sciences

Registrations are possible until April 29, 2024.

For detailed information and registration, please refer to the following QR Code:



Note: You may wish to stay for this workshop at the TUM-IAS after the end of the General Assembly. It is exclusively for male professors (including TUM-IAS Fellows and their hosts). Attendance is optional and subject to availability.

Linde Lecture

The Linde Lecture commemorates Carl von Linde, one of the first professors at the young Technical University of Munich in 1868. He pioneered industrial refrigeration on a large scale, and later developed processes for extracting oxygen and nitrogen. In 1890, he founded the company named after him for cooling systems and technical gases.

The Linde Lecture serves as a testament to the legacy of Carl von Linde and his contributions to science and industry. It aims to inspire critical reflection, theory-driven research, and practical implementation, demonstrating how these elements can expand the boundaries of knowledge and empower humanity to embark on new frontiers.



Wil Schilders is a Full Professor and Chair of Scientific Computing in the Industry in the Department of Mathematics and Computer Science at Eindhoven University of Technology, as well as a Hans Fischer Senior Fellow funded by Siemens AG.

He has worked in industry for over 30 years, and his emphasis has always been on the development of novel mathematical methods for a large variety of industrial challenges. His research plays a crucial role in bridging the gap between academia and industry, offering valuable insights into the practical applications of mathematical and computational techniques and fostering collaboration between these two domains.

Poster Session I – Monday, April 29 | 17:00 – 18:00 | 2nd & 3rd floor

Focus Group	Screen
Artificial Intelligence in Traffic Engineering and Control	1
Quantum Networks	2
Neuroglial Circuits in Health and Disease	3
Comparative-Historical Perspectives on Platform Capitalism	4
Quantum Information Theory	5
Scientific Machine Learning	6
Clinical Translation of Microbeam Radiotherapy	7, 8
Removing Institutional Roadblocks for Inclusion in Science	9
Human Cognition in Neuroengineering	11
CardioMRI	12
Cell Stress in Intestinal Tissue Repair and Microbiome Homeostasis	13
X-Ray and Computed Tomography Research	14
Sustainable Photocatalysis using Plasmons and 2D Materials (SusPhuP2M)	15
Auxin Exporters as Targets for Herbicide Resistance	16

Poster Session II – Tuesday, April 30 | 10:30 – 11:30 | 1st floor

Focus Group	Screen
Structural Design	17
Air Pollution and Climate	18
Intestinal Inflammation, Anastomotic Healing and Fibrosis	19
China in Global Economic Governance	20
Multibody Systems	21
Boundary Situations and Spiritual Care	22
Travel Behavior	23
Global Change	24
Digital Twins Of Civil Structures And Protection Systems In A Climate Change Perspective (REACT)	25
Women in Science@TUM (WISTUM) – Game Project	26
Novel Tensor Network Methods for Strongly Correlated Quantum Systems	27
Learning Sciences and Educational Design Technologies	28
Novel Quantum-Light Source	29
Disorder, Topology and Frustration in Spin-Orbit Coupled Quantum Magnets	30
Gene Editing	31
Human-Centered Neuroengineering	32, 32
Molecular Assemblies and Covalent Nanostructures on Wide Bandgap Semiconductor Surfaces	33

Technical University of Munich
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