Center for Research,
Development and Transfer

Technische
Hochschule
Rosenheim

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Bielefeld
University of
Applied Sciences
and Arts

Technical
University
of Munich

TLM

25 + 26/02/2025

All-Sky Imager
Workshop 2025

Scientific Event

Location: Stellwerk18 (Digitales Gründerzentrum)
Eduard-Rüber-Straße 7
83022 Rosenheim

Photo: Maik Jakel

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Weichen in die
digitale Zukunft

Online   **Meeting-ID: 692 5406 3370**
(Zoom) **Meeting-Passcode: 447529**

(Link: https://th-rosenheim.zoom-x.de/j/69254063370?pwd=aBhJ1ErLzqrO2x3poxuaonj0lbSWwC.1)

START OF WORKSHOP – DAY I
OPENING SESSION

09:00 – 09:15	**Welcoming Address** *Prof. Dr.-Ing. Grit Behrens, Alexander Kruse* *Prof. Mike Zehner, Andreas Boschert* Bielefeld University of Applied Sciences Technical University of Applied Sciences Rosenheim
09:15 – 09:45	**Best Practice Handbook for the Collection and Use of Solar Resource Data for Solar Energy Applications: Fourth Edition (Online)** *Jan Remund* Meteotest AG – Head of Energy & Climate International Energy Agency: Photovoltaic Power Systems Programm Task 16: Solar Resource for High Penetration and Large Scale Applications
09:45 – 10:00	Networking Break

ALL-SKY IMAGER IN FOCUS: RELIABLE SYSTEMS AND AFFORDABLE HARDWARE
CHAIR: DR. THOMAS SCHMIDT

10:00 – 10:20	**On the design of Eye2Sky camera network subsets for the optimal nowcast of PV production** *André Scheper* German Aerospace Center – Institute of Network Energy Systems
10:20 – 10:40	**Quality control methods and their evaluation in nowcasting of All-Sky Imager network (Eye2Sky)** *Arne Goerlitz* German Aerospace Center – Institute of Network Energy Systems Carl-von-Ossietzky University of Oldenburg
10:40 – 11:00	**Geometric Calibration of All-Sky Cameras Using Sun and Moon Positions: A Comprehensive Analysis (Online)** *Yann Fabel* German Aerospace Center – Solar Research Institute
11:00 – 11:20	**The potential of low-cost cameras for citizen science and data assimilation (Online)** *Dr. Leonhard Scheck* Hans-Ertel-Zentrum für Wetterforschung / LMU München
11:20 – 11:40	**Autonomous All-Sky Cameras for Optimized Control of Photovoltaic Battery Storage Systems** *Paul Matteschk* Wematics FlexCo. / Bonn-Rhein-Sieg University of Applied Sciences
11:40 – 12:40	Lunch Break

Program – Tuesday, February 25th 2025

PUBLICLY AVAILABLE ALL-SKY IMAGER-DATASETS
CHAIR: ANDREAS BOSCHERT

12:40 – 13:00	**The Eye2Sky all-sky imager network and its data availability** *Dr. Thomas Schmidt* German Aerospace Center – Institute of Network Energy Systems
13:00 – 13:20	**SkyImageNet: A large scale sky image database for solar energy meteorology (Online)** *Dr. Quentin Paletta* European Space Agency
13:20 – 13:30	Networking Break

AI-APPLICATIONS ON SKY IMAGES
CHAIR: PAUL MATTESCHK

13:30 – 13:50	**Synthetic sky image datasets for training AI models** *Max Aragon* Mines Paris PSL
13:50 – 14:10	**A new fast method for simulating all-sky images –** **Enabling a virtual benchmark suite for nowcasting and other applications?** *Philipp Gregor* Meteorologisches Institut, Ludwig-Maximilians-Universität München
14:10 – 14:30	**Deep Learning Approach for Cloud Classification from All-Sky Images** *Yassine Ribouh and Naoufal EL Atmioui* Bielefeld University of Applied Sciences
14:30 – 15:00	**Estimating Global Horizontal Irradiance and Cloud Base Height from All-Sky Images Using a Deep-Learning Approach** *Alexander Kruse* Bielefeld University of Applied Sciences
15:00 – 15:30	Networking Break

Note: The event will take place in a hybrid format. All presentations will be streamed online, even those held on-site. All timetables in this brochure are in Central European Time (CET).

SOLAR FORECASTING AND RESEARCH GAPS
CHAIR: PROF. DR.-ING. GRIT BEHRENS

15:30 – 15:50	**Deep Learning-Based PV Power Forecasting with Cloud Cover Estimation Using All-Sky Images in Thailand (Online)** *Dr. Chamnan Limsakul* King Mongkut's University of Technology Thonburi
15:50 – 16:10	**Short-Term Solar Irradiance Forecasting Using All-Sky Imagers:** **A Hybrid Artificial Intelligence Approach** *Khadija Barhmi* Utrecht University, Copernicus Institute of Sustainable Development
16:10 – 16:30	**ASI evaluation of irradiation enhancement and impact on photovoltaic yield (Online)** *Dr. Marcus Rennhofer* Austrian Institute of Technology (AIT)
16:30 – 16:45	**Review of the first event day** *Organization Team*

At the end of the workshop day I, we invite all participants to join us for a Networking Dinner. This informal gathering offers a relaxed setting to connect with fellow experts, exchange ideas, and engage in discussions about the future of solar forecasting and related technologies.

Please register separately on the day of the event, as we have to reserve tables for the number of participants

INFORMAL DINNER GATHERING (Self-Paid) *Separate registration required

18:30 – 19:00	**Tour through the historic city centre of Rosenheim**
from 19:00	**Flötzinger Bräustüberl, Samerstraße 17, 83022 Rosenheim**

START OF WORKSHOP – DAY II SOLAR IRRADIANCE
CHAIR: MAX ARAGON

09:00 – 09:15	**Welcoming Address** *Prof. Dr.-Ing. Grit Behrens, Alexander Kruse* *Prof. Mike Zehner, Andreas Boschert* Bielefeld University of Applied Sciences Technical University of Applied Sciences Rosenheim
09:15 – 09:35	**Irradiance Dynamics: Insights into Gradients, Spikes, and Cloud Phenomena** *Prof. Mike Zehner* Technical University of Applied Sciences Rosenheim
09:35 – 09:55	**PyranoCAM: A Novel, Accurate, and Robust System for Measuring DNI, DHI, and GHI (Online)** *Dr. Niklas Blum* German Aerospace Center – Solar Research Institute
09:55 – 10:15	Networking Break

COMPANY PITCHES
CHAIR: ORGANIZATION TEAM

10:15 – 10:35	• CMS Ing. Dr. Schreder GmbH / EKO Instruments • Reuniwatt • WEMATICS – Weather Informatics

MEASUREMENT CAMPAIGN AND RESEARCH GAPS
CHAIR: ALEXANDER KRUSE

10:35 – 10:55	**Temporally Parallel Hemispheric Recordings at Five Locations in the Greater Vienna Area: Measurement System and Data Analysis (Online)** *Univ. Prof. Mag.rer.nat. Dr.rer.nat. Philipp Weihs* Universität für Bodenkultur Wien
10:55 – 11:15	follows
11:15 – 11:35	follows
11:35 – 12:00	**Closing words and Evaluation** *Prof. Dr.-Ing. Grit Behrens* Bielefeld University of Applied Sciences

INNOVATION AND COLLABORATION IN ROSENHEIM – FROM ACADEMIA TO INDUSTRY

Rosenheim is a hub for innovation, entrepreneurship, and applied research, where academia and industry work hand in hand to drive technological advancements. The **Technical University of Applied Sciences Rosenheim (TH Rosenheim)** plays a pivotal role in shaping the region's knowledge economy. With its strong focus on practical education, applied research, and industry partnerships, TH Rosenheim equips students and professionals with the skills needed to tackle real-world challenges.

At the heart of the region's digital transformation is **Stellwerk18,** a leading digital startup and innovation center. As a bridge between startups, established companies, and research institutions, Stellwerk18 fosters a dynamic ecosystem that supports technological development, entrepreneurship, and business growth.

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Located in one of Bavaria's most attractive economic regions, Rosenheim benefits from its strategic position between Munich, Salzburg, and the Alpine region. By bringing together academic excellence, digital transformation, and entrepreneurial spirit, Rosenheim is shaping the future of technology and industry. Whether through groundbreaking research at TH Rosenheim, pioneering startups at Stellwerk18, or strong corporate collaborations, the city is a place where new ideas become reality.

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We look forward to welcoming you to Rosenheim and to an inspiring workshop filled with engaging discussions, knowledge exchange, and new collaborations!