

Welcome to the

Innovation Dialog!



SENSOR+TEST

DIE MESSTECHNIK - MESSE
The Measurement Fair

Nuremberg, Germany
4-6 May 2021

Efficient and personal:

Highly concentrated information and broad consultation by international experts

Based on scientific facts:

International conferences and meetings provide insights into tomorrow's technology

From sensing to evaluation:

Measuring, testing, and monitoring solutions to enable innovation in all industries



Linking Innovators

Veranstalter / Organizer
AMA Verband für Sensorik und Messtechnik e.V.
Sophie-Charlotten-Str. 15
14059 Berlin / Germany
www.ama-sensorik.de



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www.smsi-conference.com

Service Company of AMA
Association for Sensors
Technology

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SMSI 2021

Sensor and Measurement
Science International

3-6 May 2021
Nuremberg, Germany



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Call for Papers



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AMA Association for Sensors and Measurement

Nuremberg live

Nuremberg offers a variety of attractive leisure facilities. The city is charming with rich culture and beautiful medieval architecture. The lovingly restored old town with its picturesque streets and historically significant buildings invites visitors to take a stroll and relax in one of the numerous cafes.

Tradition and innovation - the mix counts

The mix of old and living traditions of Nuremberg and the open-minded people create a particularly friendly atmosphere. Here one can combine business and pleasure in an enjoyable way.

After-business pleasure

At the end of the day explore the Southern German lifestyle and enjoy the exhibition in the lovely old town quarter of Nuremberg. One more tip: Stay a day longer in Nuremberg and enjoy everything the city has to offer at your leisure.

Museums & exhibitions

Explore Nuremberg's 29 museums. From contemporary art to the High Middle Ages. From the Documentation Centre in the Nazi Party rally grounds to the New Museum for Art and Design. From the Germanic National Museum to the Museum of Industrial Culture.



Restaurants & nightlife

From Franconian grilled sausage to Japanese sushi train – Nuremberg offers culinary delights for every taste. You can dance till dawn. Fancy a taste?



Music & events

From Bards' Gathering to the International Organ Festival, from Open Air Classics to Rock in the Park, from "Christkindlesmarkt" to Norisring motor racing - Nuremberg has lots of music festivals and events.

Local recreation areas

From Franconian Switzerland to the new Franconian Lakes - Nuremberg's surroundings offer numerous attractive recreation areas. Take a trip!

More information available at:

www.tourismus.nuernberg.de

www.nuernberg.de - Information about Nuremberg

SMSI 2021 - Call for Papers

Final submission date: 30 November 2020

Call for Papers

Welcome to the Sensor and Measurement Science International Conference SMSI 2021!

The successful story of scientific conferences in the field of sensors and measurement technology in Nuremberg dates back more than 30 years.

In the context of the leading international trade fair SENSOR+TEST, several institutions and organizations have created sustainable networks for research and development specialists as well as for joint scientific projects.

Feeling the need to concentrate the power of the long-lasting AMA experience from conferences, symposia and expert sessions in one common event with international visibility, the idea of the Sensor and Measurement Science International was born.

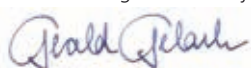
SMSI 2021 follows a holistic approach for measurement and metrology including the strong impact of the ongoing digital transformation. Hence, this event will bring together experts from sensors and instrumentation, measurement science, and metrological infrastructure. Together with our partners from industry, from academia, as well as from the national and international metrology institutions, it is our intention to develop the biannual SMSI Conference Series to one of the globally and scientifically leading events in these three fields of measurement.

We had planned the start of this SMSI Conference series already for June 2020. Because the response was overwhelming we were able to plan a three-day program with five parallel sessions and internationally world-renowned plenary speakers. Unfortunately, due to the Covid-19 pandemic, we had to postpone the first Conference to May 2021.

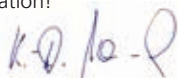
Now we want to take a new start and make the Conference planning a success. The SMSI 2021, Sensor and Measurement Science International Conference, will be held at the Nuremberg Exhibition Center from 3 to 6 May 2021. And the important news is: The 2021 SMSI Conference will be held as a face-to-face-virtual-hybrid event - physically in Nuremberg parallel to the SENSOR+TEST trade fair and virtually for speakers and visitors at any place. The virtual part of the conference will include live broadcasts of all lectures from Nuremberg as well as lectures from any parts of the world. We believe that this will give even more scientists and industry members the chance to become part of the SMSI community.

All the plenary speakers and many authors of overview papers have already declared their willingness to participate again. Therefore, it is our great pleasure to invite you to participate at SMSI 2021. Please submit your Short Paper by 30 November 2020 at <https://www.smsi-conference.com/submission-short-papers>.

We are looking forward to your participation!



Prof. Dr. Gerald Gerlach
Technische Universität Dresden
General Chair



Prof. Dr. Klaus-Dieter Sommer
Technische Universität Ilmenau
General Co-Chair

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www.smsi-conference.com

AMA Association for Sensor and Measurement - Linking Innovators

Network and Representative of Interest for the Sector for Sensor and Measurement Technology.

The AMA Association for Sensors and Measurement (Verband für Sensorik und Messtechnik) with its 450 members is Europe's leading network for the key sector of sensor and measurement technology.

AMA is the first point of contact for all topics relating to sensors and measuring technology and offers an overview of sensors, measuring and testing technology with its detailed industry directory. The AMA Directory of Suppliers is an invaluable tool for application engineers seeking specific technology or know-how.

AMA publishes the Journal of Sensors and Sensor Systems (JSSS). It is an international open-access journal dedicated to science, application, and advancement of sensors and sensors as part of measurement systems. The emphasis is on sensor principles and phenomena, measuring systems, sensor technologies, and applications.

The association promotes the innovation dialog at the leading trade fair SENSOR+TEST, at joint stands of important leading trade fairs in Germany and abroad and at the scientific congress SMSI 2021.

www.ama-sensorik.de/en



SMSI 2021 - Call for Papers

Final submission date: 30 November 2020

SMSI Conference Committee

General Chair

Gerald Gerlach

Technische Universität Dresden (Germany)

Sensors and Instrumentation

including Satellite Conference IRS²

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SMSI 2021 - Call for Papers

Final submission date: 30 November 2020

System of Units and Metrological Infrastructure

Topical Chairs

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Jens Zosel	Kurt-Schwabe-Institut für Mess- und Sensortechnik e.V., Meinsberg (Germany)

Collaborating Institutions and Organizations

- AHMT - German Working Group of Professors in Measurement Technology
- BAM - Federal Institute for Materials Research and Testing (Germany)
- BIPM - Bureau International de Poids and Mesures (France)
- CETIAT - Centre Technique des Industries Aéronautiques et Thermiques (France)
- COOMET - Euro-Asian Cooperation of National Metrological Institutions
- EURAMET - The European Association of National Metrology Institutes
- METAS - Federal Institute of Metrology (Switzerland)
- GMA - Society for Measurement and Automatic Control (Germany)
- IMEKO - International Measurement Federation (Hungary)
- INTI - Instituto Nacional de Tecnología Industrial (Argentina)
- Italian National Agency for New Technologies, Energy and Sustainable Economic Development (Italy)
- MSC - Measurement Science Conference (USA)
- NCSLI - National Conference of Standard Laboratories International (USA)
- NIST - National Institute of Standards and Technology (USA)
- PTB - Physikalisch-Technische Bundesanstalt (Germany)
- RISE - The Swedish Research Institute (Sweden)
- ROSSTANDART (Russia)
- VNIIMS - All-Russian Scientific Research Institute of Metrological Service (Russia)

Supporting Institutions:



SMSI 2021 - Call for Papers

Final submission date: 30 November 2020

Sensors and Instrumentation

A Sensor principles and quantities

- | | |
|-----------------|---------------------------|
| A.1 Mechanical | A.7 Flow |
| A.2 Optical | A.8 Magnetic |
| A.3 Temperature | A.9 Impedance |
| A.4 Humidity | A.10 Chemo and biosensors |
| A.5 Ultrasonic | A.11 Terahertz |
| A.6 Acoustic | |

B Sensor materials and technology

- | | |
|-----------------------------|--|
| B.1 Design | B.6 Packaging and integration of sensors |
| B.2 Modeling and simulation | |
| B.3 Materials | B.7 Nanotechnology |
| B.4 MEMS technology | B.8 Additive manufacturing |
| B.5 Fabrication | |

C Sensor interface electronics

- | | |
|--|-------------------------------------|
| C.1 Readout circuits | C.6 Stability and harsh conditions |
| C.2 Signal conditioning | |
| C.3 Conversion and digitization | C.7 Low power and energy harvesting |
| C.4 Signal processing | |
| C.5 Interface electronics for high precision | |

D Applications

- | | |
|----------------------------------|-------------------------|
| D.1 Process-measuring technology | D.6 Mobility |
| D.2 Production technology | D.7 Safety and security |
| D.3 Robotics | D.8 Health |
| D.4 Energy technology | D.9 Smart living |
| D.5 Environmental monitoring | D.10 IoT |

Recruiting Tutorials

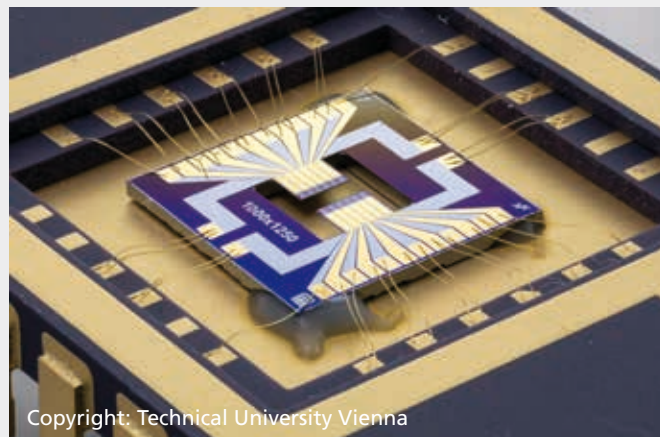
The SMSI Conference Committee would like to invite experts to submit tutorial proposals for enriching the SMSI 2021.

Tutorials will take place on Monday, 3 May 2021, at the Exhibition Center in Nuremberg, Germany.

Participation information at:
<https://www.smsi-conference.com/tutorials>

Satellite Conference: IRS² 2021 - Infrared Sensors and Systems

- | | |
|--------------------------|---------------------|
| S.1 IR thermal detectors | S.5 Pyrometry |
| S.2 IR photon detectors | S.6 Gas analysis |
| S.3 IR system components | S.7 IR spectroscopy |
| S.4 Thermal imaging | S.8 Applications |



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Young Scientist and Company Science Slam Apply now

Take part in this modern form of scientific communication and you can get a free ticket for the SMSI 2021 conference (worth 630 Euros).

Participation information at:
<https://www.smsi-conference.com/science-slam>

Measurement Science

E Measurement Foundations

- | | |
|---|---|
| E.1 Underlying mathematical, statistical and information theory | E.4 Measurement data and information fusion |
| E.2 Signal processing and data analysis | E.5 Evaluation of measurement uncertainty |
| E.3 Dynamic quantities and state estimation | E.6 Measurement of nonquantitative properties |

F Advanced Measurement Methods

- | | |
|--|---|
| F.1 Smart sensor applications | F.4 "Self-X" strategies |
| F.2 Condition monitoring | F.5 Numerical simulation approaches |
| F.3 Virtual and quantum-based system references, Digital twins | F.6 Parametric and data-driven modelling approaches |

G Networked and IoT-related Measurement Systems

- | | |
|---|---|
| G.1 Aggregated sensor and measurement systems | G.3 Autonomous measurement systems |
| G.2 "Soft Sensors" and practical information fusion | G.4 Synchronization and dynamic modelling of aggregated systems |

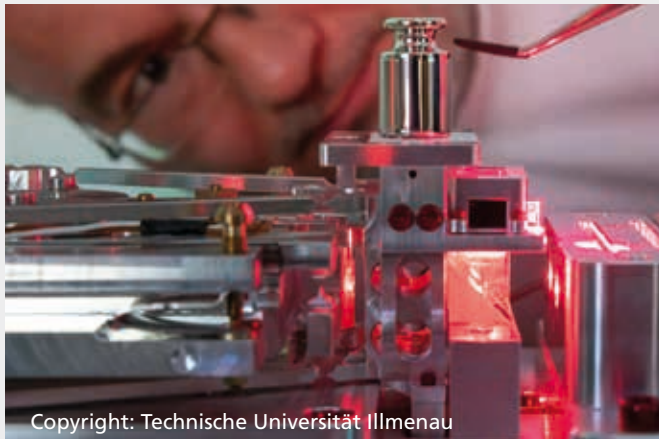
H AI Approaches in Measurement

- | | |
|---|--|
| H.1 Intelligent and learning systems in measurement | H.3 Objective quality assessment of data-driven and learning systems |
| H.2 Explainable and transparent AI | |

I Education for Measurement and Measurement for Education

J Applications

- | | |
|---------------------------------------|--|
| J.1 Production processes and Robotics | J.4 Mobility |
| J.2 Energy supply | J.5 Safety and security |
| J.3 Environmental monitoring | J.6 Health and socio-technical systems |



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System of Units and Metrological Infrastructure

K Revised SI and its Opportunities

- | | |
|---|--|
| K.1 New definitions of units and scales | K.2 Traditional and quantumbased measurement standards |
|---|--|

L Metrological Traceability in the Digital Transformation Process

- | | |
|---|--|
| L.1 Novel traceability schemes | L.4 Technology and knowledge transfer |
| L.2 Data analysis and qualification | |
| L.3 Robust simulation and modeling in metrology | L.5 Next metrological infrastructures in regulated and non-regulated areas |

M Advanced Calibration Approaches

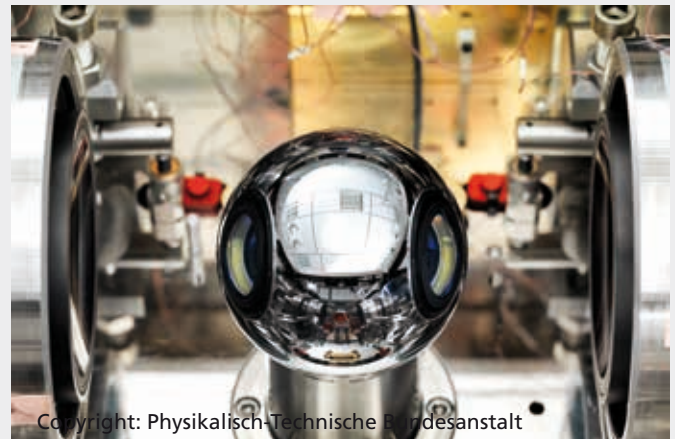
- | | |
|---|---|
| M.1 Calibration approaches for networked measuring systems | M.4 Remote and on-site calibration, self-calibration |
| M.2 Synchronization and dynamic calibration of aggregated measuring systems | M.5 Measurement uncertainty evaluation in calibration and testing |
| M.3 Applying digital twins and virtual components in calibration | M.6 Software for the assistance in calibration processes |

N Advanced Testing Methods

- | | |
|--|---|
| N.1 Advances in testing and inspection | N.3 Structural health monitoring |
| N.2 Reference materials | N.4 Advanced metrology and testing in manufacturing |

P Regulations and normative Documents on Metrology

- | | |
|--|--|
| P.1 New and future regulations and normative documents | P.3 International cooperation in metrology |
| P.2 Risk analysis in metrology and conformity assessment | |



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SMSI 2021 - Call for Papers

Final submission date: 30 November 2020

Submission of Short Papers

Interested authors are kindly requested to submit a Short Paper (as PDF file) of their work for oral or poster presentation by 30 November 2020 at <https://www.smsi-conference.com/submission-short-papers>. All Short Papers will undergo a peer-review procedure.

Authors that had been accepted already for SMSI 2020 are accepted again for the SMSI 2021 in any case. Please provide a modified version of your presentation and note this when submitting the new Short Paper.

Deadlines

Short Paper (2-pager) submission:

30 November 2020

Notification to authors:

15 February 2021

Information on Short Papers and Proceedings:

- Only Short Papers using the official template (available on <https://www.smsi-conference.com/smsi2020-template>) will be accepted.
- Maximum length of Short Paper: 2 pages
- Accepted Short Papers **will be transferred to the proceedings directly!** Authors do not need to submit separate papers for the proceedings.
- Proceedings papers (Short Papers) will receive a DOI (Digital Object Identifier) number and will be published at www.ama-science.org.
- Authors of papers presented at the SMSI Conference will be offered the opportunity to publish an extended paper (max. 8 pages) in the open-access journal JSSS, Journal of Sensors and Sensor Systems (www.journal-of-sensors-and-sensor-systems.net) at a special rate. Authors are also encouraged to publish an extended paper in the scientific journal "tm – Technisches Messen" (<https://degruyter.com/view/j/tme>). Other than the conference publication on ama-science.org, both - JSSS and tm - are peer-reviewed journals and are indexed in Scopus and the Web of Science.
- Presenting authors must **register for the conference and pay the conference fee by 08 March 2021 at the latest**. Otherwise, the Short Paper will not be included in the proceedings.
- A maximum of two Short Papers by each registered author will be accepted, regardless the type of presentation.

Lecture Sessions

20 minutes are allocated for each presentation (incl. 5 minutes for discussion). The presentation language will be English.

Poster Session

Authors of the Poster Session are requested to prepare a poster in English (90 cm width x 120 cm height) and to bring it along to the conference.

New: hybrid conference – face-to-face and virtual

Besides the personal conference participation in Nuremberg, there will be the possibility to give a virtual presentation. The technical conditions and the conference contribution will be announced shortly on our website <https://www.smsi-conference.com/hybrid-conference>

Registration fees for authors

Author fee	630 Euros incl. VAT
Author fee for PhD students:	560 Euros incl. VAT
Author fee for graduate students:	490 Euros incl. VAT

The registration fee for authors includes:

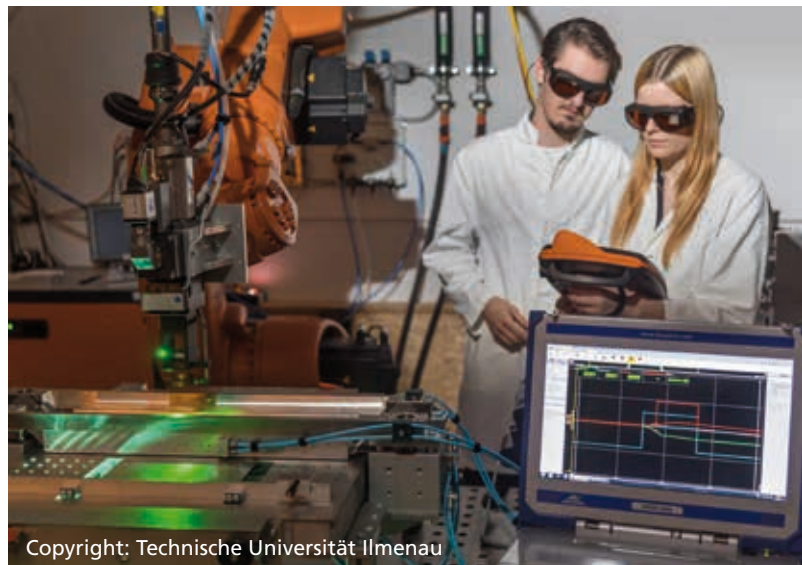
- Participation in the SMSI 2021 Conference all days except Tutorials
- Proceedings
- SENSOR+TEST 2021 exhibition guide
- Admission to the SENSOR+TEST exhibition
- Refreshments
- Welcome reception on 03 May 2021
- Conference Dinner
- Reduced rate for publication of an extended paper in the open-access journal JSSS

Please note: Submission of a Short Paper implies the intent of at least one author to register, to attend the conference and to present the paper or poster as scheduled.

Best Paper Awards

The SMSI Conference Committee will award the

- Best Paper Award
 - Best Poster Award and
 - Best Young Scientists Award (up to the age of 35 years)
- at the farewell reception on the last day of the conference.



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