INTERNATIONAL CONFERENCE

«ENGINEERING MANAGEMENT OF COMMUNICATION AND TECHNOLOGY» (EMCTECH)

IEEE Conference Record #53459

Vienna, Austria
October 20 – 22, 2021

FINAL INFORMATION AND STATISTICS

"Connecting Development of Technology, Engineering Management and Personal Skills"

International conference

"ENGINEERING MANAGEMENT OF COMMUNICATION AND TECHNOLOGY" (EMCTECH) was held on October 20-22, 2021 in Vienna (Austria)

On EMCTECH-2021 was invited researchers, educators, managers, and students, which research activity, case studies or best practices, shedding light on the theory or practice of engineering, technology, innovation management, or development of personal skills, business and entrepreneurship.

CONFERENCE ORGANIZERS:

- INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE);
- INSTITUTE OF RADIO AND INFORMATION SYSTEMS (IRIS ASSOCIATION, VIENNA, AUSTRIA)

CONFERENCE EMCTECH-2021 WILL PRODUCE A PUBLICATION. All accepted and presented Papers following the conference will be submitted for inclusion into IEEE Xplore and will be submitted also for indexing in Scopus and Web of Science data bases.

FIELD OF INTEREST ON EMCTECH-2021:

- Technology advancements in IoT devices, artificial Intelligence, Broadcasting, wire and optical communication;
- New opportunities using technology in BioMedical, Farming, Transportation, and Cyber Physical Systems;
- Digital Transformation and Data Risk Management in ICT/Telecommunication, smart cities, public policy;
- Engineering technology leading to social, political and economical change.

On EMCTECH-2021 IEEE in cooperation with Institute of Radio and Information Systems (IRIS) provide various opportunities for publishing results of research, based on international scientific and technical cooperation of researchers, PhD students and students in the field of radio and information systems.

EMCTECH TOTAL STATISTICS

IEEE Conference Record # 53459

Year	Applications	Accepted papers	% of accepted papers	IEEE Members - Conference Participants	Conference participants	Conference authors	Organizations	Cities	Countries/ Continents
2020	95	57	60	10	201	139	38	17	12/5
2021	46	28	60	10	80	65	31	25	22/5

28 reports presented at the conference in 6 sections:

- **TECHNOLOGY ADVANCEMENTS IN IOT DEVICES & ARTIFICIAL INTELLIGENCE**
- **TRANSPORT AND COLLECTIVE SYSTEMS: SMART CONTROL TECHNOLOGY IN TRANSPORTATION, BIOMEDICAL, FARMING AND CYBER PHYSICAL SYSTEMS (New opportunities using technology in biomedical, farming, transportation, and cyber physical systems)**
- **BROADCAST TECHNOLOGIES ADVANCEMENTS – RADIO, IP, CELLULAR, ON DEMAND, INTERACTIVE, WIRE AND OPTICAL COMMUNICATION**
- **INFORMATION PROCESS MANAGEMENT IN DIGITAL SOCIETY AND INDUSTRY 4.0**
- **DIGITAL TRANSFORMATION AND DATA RISK MANAGEMENT IN ICT/TELECOMMUNICATION**
- **ENGINEERING TECHNOLOGY LEADING TO SOCIAL, POLITICAL AND ECONOMICAL CHANGE**

31 companies took part in the conference:

1. Advisors of Suisse department of International Telecommunication Academy, Geneva, Switzerland
2. Amazon Development Center, Gdansk, Poland
3. Azerbaijan Technical University, Baku, Azerbaijan
4. Department of Computer Science & Technology, Qilu University of Technology, Shandong, China
5. Department of Information & Communication Engineering, Islamia University of Bahawalpur, Punjab, Pakistan
6. Department of Information Technology, Bharati Vidyapeeth Deemed University, College Of Engineering, Pune, Republic of India
7. Faculty of Applied Science (FSA),Denis SASSOU N'GUESSO University, Brazzaville, Congo
8. Faculty of Engineering, Architecture and IT, The University of Queensland, Brisbane, Australia
9. Faculty of Mechanical Engineering, University of Transport and Communications, Ha Noi, Vietnam
10. Federal University of Campina Grande, Republic of Brasil, Salvador, Republic of Brasil
11. Financial University under the Government of the Russian Federation, Moscow, Russia
12. GCBI, International Telecommunication Union, Geneva, Switzerland
13. Impact-BZ Ltd, London, United Kingdom
14. INCOTELOGY GmbH, Pulheim, Germany
15. Institute of Radio and Information Systems (IRIS), Vienna, Austria
16. International Information Technology University, Almaty, Kazakhstan
17. IT Department, Macmillan Cancer Support, London, United Kingdom
18. Jyväskylä university, Finland
19. LLC "Darbaza-Avtomatik", Bishkek, Kyrgyzstan
20. Moscow Automobile and Road Consruction State Technical University, Moscow, Russia
21. Moscow Technical University of Communications and Informatics, Moscow, Russia
22. National Superior Polytechnic School (ENSP),Marien NGOUABI University
23. Penza State University, Penza, Russia
24. Research University Higher School of Economics (HSE University), Moscow, Russia
25. School of Computer & Systems Sciences, Jawaharlal Nehru University, New Delhi, India

26. Technische Universität Ilmenau, Ilmenau, Germany
27. The University of Waikato, Hamilton, New Zealand
28. University of Burundi, Bujumbura, Burundi
29. University of Economics, Prague, Česko
30. University of Trento, Trento, Italy
31. University of West Attica, Athens, Greece

Participants with reports from 25 cities took part in the conference:

1. *Almaty, Kazakhstan*
2. *Athens, Greece*
3. *Baku, Azerbaijan*
4. *Bishkek, Kyrgyzstan*
5. *Brazzaville, Congo*
6. *Brisbane, Australia*
7. *Bujumbura, Burundi*
8. *Gdansk, Poland*
9. *Geneva, Switzerland*
10. *Ha Noi, Vietnam*
11. *Hamilton, New Zealand*
12. *Ilmenau, Germany*
13. *Jyväskylä, Finland*
14. *London, United Kingdom*
15. *Moscow, Russia*
16. *New Delhi, India*
17. *Penza, Russia*
18. *Prague, Czech Republic*
19. *Pulheim, Germany*
20. *Pune, Republic of India*
21. *Punjab, Pakistan*
22. *Salvador, Republic of Brasil*
23. *Shandong, China*
24. *Trento, Italy*
25. *Vienna, Austria*

Representatives from 22 countries and 5 continents took part in the conference as speakers and listeners:

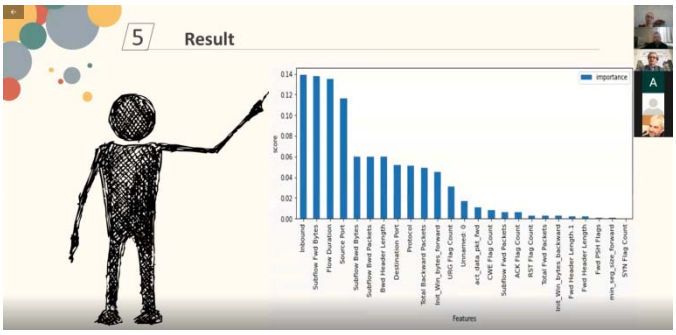
Europe (Austria, Czech Republic, Finland, Germany, Greece, Italy, Poland, Russia, Switzerland, United Kingdom)
Asia (Azerbaijan, China, India, Kazakhstan, Kyrgyzstan, Pakistan, Vietnam)
South America (Republic of Brazil)
Australia, New Zealand
Africa (Burundi, Congo)

EMCTECH-2021

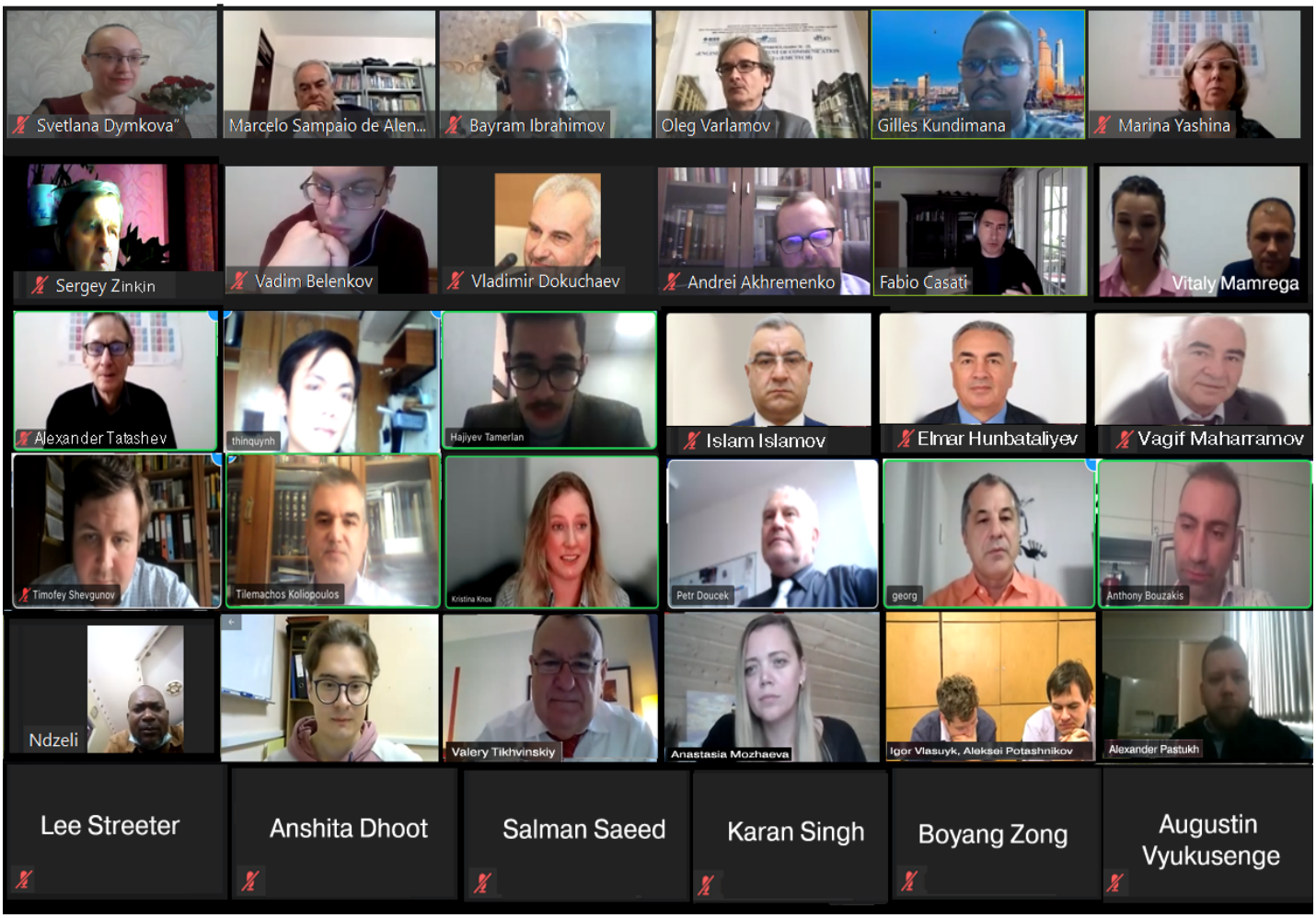
First conference day – 20 October 2021

INVITED TALKS

Report by Dr. ***Julius Golovatchev, Anton Bezlakovskii, Evgeniy Bezlakovskii and Georg Kirchgeßner****, INCOTELOGY GmbH, Pulheim, Germany*



Report by ***Anshita Dhoot, Karan Singh,*** *School of Computer & Systems Sciences, Jawaharlal Nehru University, New Delhi, India* ***Boyang Zong,*** *Department of Computer Science & Technology, Qilu University of Technology, Shandong, China and* ***Salman Saeed,*** *Department of Information & Communication Engineering, Islamia University of Bahawalpur, Punjab, Pakistan*



EMCTECH-2021

Second conference day 21 October 2021

WEBINAR FOR UNDERGRADUATE AND GRADUATE STUDENTS

"FUNDAMENTALS OF SCIENTIFIC RESEARCH": AUTHOR'S PROFILES IN SCIENTOMETRIC DATABASES

SPEAKERS

Albert Waal

RFmondial GmbH, Hannover, Germany

Oleg Varlamov

Institute of Radio and Information Systems (IRIS Association), Vienna, Austria

Angelina Bott

City Administration, Bad Wildbad, Germany

Augustin Vyukusenge

University of Burundi, Bujumbura, Burundi

Svetlana Dymkova

Institute of Radio and Information Systems (IRIS Association), Vienna, Austria

Unique author identifiers in the information systems make it possible to establish an unambiguous correspondence between the author and his scientific publications, eliminating the problem of the plurality of spelling of the surname (namesakes, change of surnames, incomplete indication of names in publications, various transliterations etc.). It is possible to accurately measure citation rate of the works of individual researchers, to facilitate the process of assessing productivity and influence of both a particular author and a scientific organization by summing up the activities of its employees.

An author's profile is a collection of information in a scientometric database about the author's place of work, number of his publications and their citation rate, years of publication activity, research area, co-authors, Hirsch index, a list of literary sources used in works, etc. Each author's profile is assigned a unique identifier.

This webinar contains step-by-step instructions for creating author profiles in international author registration systems. The manual was developed to improve the presentation of information about publications of students and university staff in citation indexes (Web of Science, Scopus), as well as in international author registration systems (ResearcherID, ORCID, Google Scholar, etc.).

Information about the authors' publications used for the purpose of calculating individual achievements upon admission to the magistracy and postgraduate studies, establishing additional payments, bonuses, when holding competitions for the replacement of positions, competitions for the provision of funds for participation in conferences, grants, etc., the administrative services of universities are obtained on the basis of information about the identifiers of the authors in the corresponding citation indices or author registration systems. Publications that are not tied to the corresponding author profiles are not taken into account when analyzing the publication activity of the authors.

COURSE CONTENTS

LESSON 1. CREATING AN AUTHOR'S PROFILE IN GOOGLE SCHOLAR AND MAINTAINING HIS PERSONAL PAGE IS AN IMPORTANT FACTOR IN THE AUTHOR'S REPRESENTATION IN INFORMATION ENVIRONMENT OF THE WORLD SCIENTIFIC COMMUNITY

Google Scholar is one of the most widely used full-text search engines for scientific publications of all formats and disciplines, as well as indexing by various indicators. At the moment, it is the world's most popular search engine for scientific publications, including articles, dissertations, books, abstracts and reports published by scientific literature publishers, professional associations, universities and other scientific organizations.

The fundamental difference between Google Scholar and similar systems (databases, citation indexes) is that the number of publications indexed and displayed in Google Scholar automatically (as a result of the work of search robots) includes those publications for which data (including metadata, PDFs with full text) are available on the Internet.

For an organization, the registration of its authors in Google Scholar is important for increasing the organization's representation in information environment of the world scientific community and for systematizing and structuring data on publications and citations of employees' publications available in Google Scholar. Further correct indexing according to these indicators is necessary for the correct accounting of these indicators and the promotion of organization in various webometric ratings.

LESSON 2. ORCID ID REGISTRATION, MANAGEMENT OF THE RECORD RESULTS AND ACTIVITIES, SEARCH IN THE REGISTER OF OTHER SCIENTISTS

ORCID is an open, non-profit organization. ORCID's work is aimed at creating and maintaining a registry of unique identifiers for researchers and the link between research papers and their results and these identifiers. The ORCID project is unique in that it is not limited by the framework of a specific scientific discipline, research section and state boundaries. The ORCID registry allows researchers to link researchers to their performance by integrating the ORCID iD into key processes such as updating an investigator's dossier, reviewing manuscripts, and applying for grants and patents.

The ORCID accounting system provides two main features:

1. A registry where you can get a unique identifier and manage the record of research results.

2. Development interfaces (API), designed to ensure the transfer of data between different accounting systems and the establishment of authorship of scientific papers in each of them. ORCID software is distributed under a free license. The free download database is updated every year and operates under a copyright waiver and public domain release tool.

Individual researchers can obtain an ORCID ID, manage their records, and search the registry for other researchers. Research organizations can become participants in the ORCID project to link ORCID IDs to records stored in local databases, to update records in the registry and receive notifications about ORCID work, as well as to register their employees and students and receive an ORCID ID.

LESSON 3. REGISTRATION AND WORK IN RESEARCHGATE

ResearchGate is a free social network and collaboration tool for scientists from all scientific disciplines. It provides web-based applications such as semantic search (search by annotation), file sharing, sharing a publication base, forums, methodological discussions, and so on.

One of the distinguishing features of ResearchGate is its semantic search engine, which indexes both internal resources and the main public article databases, including PubMed, CiteSeer, arXiv, NASA Library.

This search engine was specially designed to analyze entire article abstracts (not just keywords), which should improve the accuracy of the results. A similar semantic match search engine is used to offer new social connections to network participants. After analyzing the information specified by the user in his profile, the site offers close to the interests of the user of the group, other members and literature. In total, more than 1,100 groups have been created. Groups can be both open and closed. Any user can always create a new group.

The group offers collaboration support tools such as file sharing tools. There are also tools for scheduling meetings and organizing surveys. Several academic organizations and conferences use ResearchGate as their primary means of communicating with participants. The site also offers the possibility of creating subgroups for large organizations, open only to members from the respective institution.

ResearchGate makes it possible to download recently published articles while respecting copyright. These articles are automatically indexed by the site's search engine. Users can read and download articles for free.

LESSON 4. WORKING WITH AN AUTHOR PROFILE IN SCOPUS

Scopus is a bibliographic and abstract database and citation tracking tool for articles published in scientific journals. The database indexes scientific journals, conference proceedings and serial books, as well as Trade Journals. Scopus is developed and owned by Elsevier Publishing Corporation. The database is available on a subscription basis via the web interface. The search engine is integrated with the Scirus web search engine and patent database. For authors who have published more than one article, individual accounts are created in Scopus - author profiles with unique author identifiers (Author ID).

These profiles provide information such as variations of the author's name, list of places of work, number of publications, years of publication activity, research areas, links to main contributors, total number of citations per author's publications, total number of sources cited by the author, Hirsch index of the author etc.

The database provides users with the ability to use unique author identifiers to generate search queries and set up email or RSS alerts for changes in author profiles. The possibilities of searching for authors and limited viewing of their profiles are available without a subscription to the Scopus database using the Scopus Author Preview.

Similar to author profiles, for institutions whose employees have published more than one article, Scopus creates profiles with unique identifiers of institutions (Scopus Affiliation Identifiers). These profiles provide information such as the address of the institution, the number of staff authors of the institution, the number of staff publications, a list of the main titles of the publications in which the staff of the institution are published, and a chart of thematic distribution of publications of the staff of the institution.

LESSON 5. CREATING AND WORKING WITH AN AUTHOR PROFILE IN WEB OF SCIENCE

Web of Science (WoS) is a multidisciplinary platform that helps you quickly find, analyze and share information in the natural sciences, social sciences, humanities, and arts. The user has integrated access to high-quality literature through a unified platform that links a wide variety of content and search terms together to create one common vocabulary and one comprehensive search. Developed by Thomson Reuters, currently owned by Clarivate Analytics, and available by subscription. The platform has built-in capabilities for searching, analyzing and managing bibliographic information. The core of the platform is the Web of Science Core Collection database.

ResearcherID (currently the service has been expanded and renamed Publons, and the ResearcherID name remains only as an author's identifier) is a free resource for the worldwide polythematic scientific community. After registration, the user is assigned an individual identification number, which is retained for the entire time of work, regardless of the change in the name or affiliation of the organization.

Publons allows you to create a profile online to present your publication history. The resource is designed to connect the user with his scientific work, which provides an accurate record of the output and authorship. It also enables colleagues to quickly locate a user's published work and identify him as a potential collaborator. Publons tools include an interactive lab environment for exploration of author-level metrics. These tools allow you to perform visual analysis of research networks in accordance with the following parameters: subject category; country / territory; organization; author's name; year of publication; geographical position.

FOR FURTHER INFORMATION
IRIS Association
iris@media-publisher.eu

FOLLOWING THE CONFERENCE THE PARTICIPANTS WERE AWARDED DIPLOMAS:

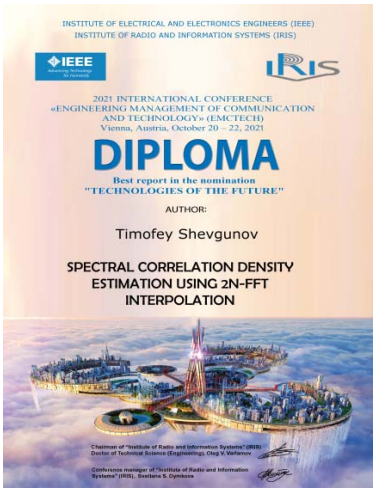
Diploma for the best report in the nomination "**MANAGEMENT IN ENGINEERING**"
is awarded to

Julius Golovatchev, Anton Bezlakovskii,
Evgeniy Bezlakovskii, Georg Kirchgeßner,
INCOTELOGY GmbH, Pulheim, Germany

for the report

DIGITAL TWINS FOR THE BASALT FIBER PRODUCTION 4.0: SMART DIGITALIZATION IN THE FIBER INDUSTRY THROUGH IoE

Diploma for the best report in the nomination "**TECHNOLOGIES OF THE FUTURE**"
is awarded to

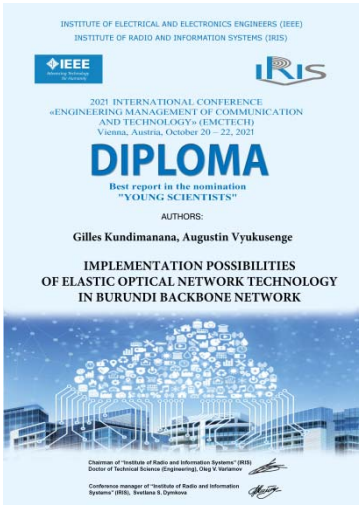


Timofey Shevgunov,
Institute of Radio and Information Systems (IRIS Association), Vienna, Austria

for the report

SPECTRAL CORRELATION DENSITY ESTIMATION USING 2N-FFT INTERPOLATION

Diploma for the best report in the nomination "**YOUNG SCIENTISTS**"
is awarded to



Gilles Kundimanana, Augustin Vyukusenge,
University of Burundi, Bujumbura, Burundi

for the report

IMPLEMENTATION POSSIBILITIES OF ELASTIC OPTICAL NETWORK TECHNOLOGY IN BURUNDI BACKBONE NETWORK

Media partner of EMCTECH-2021
an open access journal by MDPI – *Sensors*

Message from the Guest Editor

Prof. Dr. Oleg Varlamov
Institute of Radio and Information Systems (IRIS),
Vienna, Austria

Telecommunications is progressively being implemented all around the world, connecting not only people with each other, but also many technical devices around us. At the same time, the resources that they can use are fundamentally limited—in both spectral and energy efficiency.

This Special Issue will look at advanced technologies for increasing the efficiency of telecommunication systems and devices globally speaking. This is an increase in spectral efficiency, and energy efficiency, taking into account their possible coexistence. A wide range of applications for these solutions is required in various levels of the development surrounding telecommunications infrastructure, characteristics of objects in terms of mass and speed, and differences in the conditions of radio wave propagation. These solutions will be energetically locally optimal for each specific condition, and that is the purpose of this Special Issue.

We invite all the academic community, researchers, and leaders from the industry, and innovators to contribute with great new ideas for our common and global connected world.

Message from the Editor-in-Chief

Prof. Dr. Vittorio M.N. Passaro
Dipartimento di Ingegneria Elettrica e dell'Informazione
(Department of Electrical and Information Engineering),
Politecnico di Bari, Bari, Italy

Sensors is a leading journal devoted to fast publication of the latest achievements of technological developments and scientific research in the huge area of physical, chemical and biochemical sensors, including remote sensing and sensor networks. Both experimental and theoretical papers are published, including all aspects of sensor design, technology, proof of concept and application. Sensors organizes Special Issues devoted to specific sensing areas and applications each year.

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Journal Rank: JCR – Q1 (Instruments & Instrumentation) / CiteScore – Q1 (Instrumentation)

The next EMCTECH conference – October 20-22, 2022
Vienna, Austria