

**Federation of the Scientific-Technical Unions in Bulgaria (FNTS)
Union of Electronics, Electrical Engineering and Telecommunications (CEEC)
IEEE Bulgarian Section**

Ministry of Transport, Information Technology and Communications

Communications Regulation Commission

Technical University of Sofia

Faculty of Telecommunications - TUS

Union of Scientists in Bulgaria (USB)

Telecommunications Association (ASTEL)

**29-th NATIONAL CONFERENCE
WITH INTERNATIONAL PARTICIPATION**

TELECOM 2021

THE WAYS TO CONNECT THE FUTURE



P R O G R A M M E

28 - 29 October 2021
*National Science and Technical Centre,
108 Rakovsky St. – Sofia*
&
Virtual room

TELECOM 2021

is technically co-sponsored by IEEE:

**2021 29th National Conference with
International Participation - #53156**

General partners:



A1 Bulgaria EAD



Huawei Technologies Bulgaria Ltd

The conference is organized

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Telecom 2021 Sessions Timetable

<i>Date</i>	<i>Time</i>	<i>Sessions</i>
Wednesday 27.10.2021	10.00-12.00 16.00-18.00	Registration of participants & test the system (Virtual room 1) Webex Platform (Phone: +359 2 987 97 67, Mail: ceec@mail.bg)
Thursday 28.10.2021		Plenary Session 1, Hall 3 & Virtual room 1
	10.00 – 12.15	Conference Opening Chairmen: Assoc. Prof. Plamen Vachkov, PhD Prof. Seferin Mirtchev, DSc Greetings Presentations: 1. MTITC, 2. CRC, 3. A1, 4. Huawei
	13.00 - 14.00	Plenary Session 2, Hall 3 & Virtual room 1 Chairman: Assoc. Prof. Dimitar Arnaudov, PhD Presentations: 5. Ivan Ganchev - invited paper, 6. Kamen Rangelov, 7. Kiril Konov
	14.15 – 15.15	Section Session 1, Hall 3 & Virtual room 1 Wireless systems – 5G, mobile and satellite communications, wireless access, cognitive radio. Chairman: Prof. Seferin Mirtchev, DSc Presentations: Papers 1.1, 1.2, 1.3,.1.4, 1.5
	15.30 – 17.30	Section Session 2, Hall 3 & Virtual room 1 Internet of Things (IoT). Smart home and cities. eHealth. Better living with ICT. Chairman: Prof. Elena Shoikova, DSc Presentations: Papers 2.1, 2.2, 2.3,.2.4, 2.5, 2.6, 2.7, 2.8

<i>Date</i>	<i>Time</i>	<i>Sessions</i>
Friday 29.10.2021	09.00 – 10.15	<p style="text-align: center;">Section Session 3, Hall 3 & Virtual room 1</p> <p style="text-align: center;">Telecommunication networks. Big data networking. Cybersecurity.</p> <p style="text-align: center;">Chairman: Assoc. Prof. Georgi Petrov, PhD</p> <p style="text-align: center;">Presentations: Papers 3.1, 3.2, 3.3, 3.4, 3.5, 3.6</p>
	10.30 – 12.15	<p style="text-align: center;">Section Session 4, Hall 3 & Virtual room 1</p> <p style="text-align: center;">Communication issues, supercomputers, artificial intelligence, machine learning. Intelligent Transport Systems.</p> <p style="text-align: center;">Chairman: Assist. Prof. Rositsa Goleva, PhD</p> <p style="text-align: center;">Presentations: Papers 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9</p>
	13.00 – 14.00	<p style="text-align: center;">Section Session 5, Hall 3 & Virtual room 1</p> <p style="text-align: center;">Communication circuits, signals and systems. Image processing and coding.</p> <p style="text-align: center;">Chairman: Prof. Seferin Mirtchev, DSc</p> <p style="text-align: center;">Presentations: Papers 5.1, 5.2, 5.3, 5.4, 5.5</p>
	14.15 – 15.15	<p style="text-align: center;">Section Session 6, Hall 3 & Virtual room 1</p> <p style="text-align: center;">Economics and marketing of electronic communications. Education in the field of telecommunication.</p> <p style="text-align: center;">Chairman: Eng. Stefan Patchedjiev, PhD</p> <p style="text-align: center;">Presentations: Papers 6.1, 6.2, 6.3, 6.4, 6.5</p>
	15.30 – 15.55	<p style="text-align: center;">Section Session 7, Hall 3 & Virtual room 1</p> <p style="text-align: center;">Telecommunications.</p> <p style="text-align: center;">Chairman: Assoc. Prof. Alexander Nenkov, PhD</p> <p style="text-align: center;">Presentations: Papers 7.1, 7.2</p>
	16.00	<p style="text-align: center;">Closing of the Conference, hall 3 & Virtual room 1</p>
		<p style="text-align: center;">Assoc. Prof. Plamen Vachkov, PhD Prof. Seferin Mirtchev, DSc</p>

CONFERENCE PROGRAMME

Wednesday,
27.10.2021 г.
10.00 – 12.00
16.00 – 18.00

Registration of participants & test the system
([Virtual room 1](#))
Webex Platform

Thursday,
28.10.2021 г.

NATIONAL SCIENCE AND TECHNICAL CENTRE
Hall 3 & [Virtual room 1](#)

10.00 – 12.15
28.10.2021 г.

Plenary Session 1, Hall 3 & [Virtual room 1](#)
Conference Opening, Greetings
Chairmen: Assoc. Prof. Plamen Vachkov, PhD
Prof. Seferin Mirtchev, DSc

1. **“Europe's Digital Decade: goals in the field of digital technologies for 2030”**
Dimitar Dimitrov - Director of Communications Directorate,
Ministry of Transport, Information Technology and Communications
2. **"Regulatory aspects related to the use of radio spectrum for wireless networks"**
Daniela Aleksieva - Head of Regulation and Coordination Department in
the Directorate of Limited Resource Management
Plamen Bonev, Senior Expert in the Radio Frequency Spectrum Control Department of the General
Directorate for Monitoring and Control of Communication
Communications Regulation Commission
3. **“Development of the 5G network of A1: 5G ULTRA”**
Georgi Raykov, Senior Manager "Quality Assurance and OSS Competence Centre"
A1 Bulgaria EAD
4. **“Huawei”**
Ivan Ivanov - Manager,
Huawei Technologies Bulgaria Ltd

12.15 – 13.00 **Lunch Break**

13.00 – 14.00
28.10.2021 г.

Plenary Session 2, Hall 3 & [Virtual room 1](#)
Chairman: Assoc. Prof. Dimitar Arnaudov, PhD

5. “Smart Recommendation of Telecommunication Services” invited paper
Ivan Ganchev - University of Plovdiv “Paisii Hilendarski”, Haiyang Zhang, Máirtín O’Droma
6. “Notes on Telecommunications – 2021”
Kamen Rangelov – CEEC
7. „Status of the Digital TV Broadcasting,„
Kiril Konov - CEEC

14.15 – 15.15 **Section Session 1, Hall 3 & [Virtual room 1](#),**
28.10.2021 г. **WIRELESS SYSTEMS – 5G, MOBILE AND SATELLITE COMMUNICATIONS,**
WIRELESS ACCESS, COGNITIVE RADIO.

Chairman: Prof. Seferin Mirtchev, DSc

- 1.1. Implementation Aspects of Mobile Edge Location Service in 5G
Ivaylo Atanasov, Evelina Pencheva, Emilia Dimitrova
- 1.2. Prediction of Radio Wave Attenuation due to Clouds using ANN and its business aspects
Hitesh Singh, Vivek Kumar, Kumud Saxena, Boncho Bonev, Ramjee Prasad
- 1.3. An ANN Model for Predicting Radio Wave Attenuation Due to Rain and its Business Aspect
Vivek Kumar, Hitesh Singh, Kumud Saxena, Boncho Bonev, Ramjee Prasad
- 1.4. Channel Activity Analysis of Cognitive Radio with PCA Preprocessing and Different Clustering Methods
Todor D. Tsvetkov, Iliia G. Iliev
- 1.5. Study of band gap structure for improving antenna radiation pattern
Ivaylo Nachev, Iliia G. Iliev

15.30 – 17.30 **Section Session 2, Hall 3 & [Virtual room 1](#),**
28.10.2021 г. **INTERNET OF THINGS (IOT). SMART HOME AND CITIES.**
eHEALTH. BETTER LIVING WITH ICT.

Chairman: Prof. Elena Shoikova, DSc

- 2.1. Multichannel IoT System for Weather and Air Quality Monitoring
Rosen Miletiev, Emil Iontchev, Rumen Yordanov
- 2.2. Assessment of Energy Absorption and Hemolysis of RBCs Due to a Wearable Antenna
Gabriela Atanasova, Boyana Angelova, Margarita Kouzmanova, Nikolay Atanasov,
Momchil Paunov, Maria Gurmanova
- 2.3. Intelligent Support System for People with Visual Impairments
Nikolay Gospodinov, Georgi Krastev
- 2.4. Design and Research of Smart IoT Control System for Electrical Appliances
Neven Nikolov, Ognyan Nakov, Daniela Gotseva
- 2.5. Design of a System for Intelligent Agriculture and Monitoring of the Optimal Parameters of Agricultural Crops
Stanyo Kolev
- 2.6. Most Favorable Results for Forecasting Methods for Natural Gas and Photovoltaic Energy Consumption
Silvia Baeva, Ivelina Hinova
- 2.7. Intelligent architecture for real-time personal health monitoring in the context of 3G/4G/5G technology
Valia Markova, Todor Ganchev, Evelina Pencheva, Ivaylo Atanasov
- 2.8. Smart System for Control and Monitoring a DC Motor
Nikolay Hinov, Spas Ivanov

**Friday,
29.10.2021 г.**

**NATIONAL SCIENCE AND TECHNICAL CENTRE
Hall 3 & [Virtual room 1](#)**

**09.00 – 10.15
29.10.2021 г.**

Section Session 3, Hall 3 & [Virtual room 1](#)

**TELECOMMUNICATION NETWORKS. BIG DATA NETWORKING.
CYBERSECURITY.**

Chairman: Assoc. Prof. Georgi Petrov, PhD

- 3.1. Power Conscious Routing Protocol for Ad-hoc 6LoWPAN Networks
Ravinder Beniwal, Kamelia Nikolova, Georgi Iliev
- 3.2. Comparison between Different Topologies of IP Networks Using MPLS
Ivan Nedyalkov, Georgi Georgiev
- 3.3. Benefits and Challenges of Big Data Analysis in Telecom Industry
Boyan Jekov, Milena Petkova, Lyubomir Gotsev, Vladimira Petkova
- 3.4. Analysis of Software Vulnerabilities, Measures for Prevention and Protection and Security Testing
Ognian Nakov, Roumen Trifonov, Galya Pavlova, Plamen Nakov
- 3.5. Performance Evaluation of Constellation Diagram Analysis-based Methods for PCA Detection
Dimitriya Mihaylova, Viktor Stoykov, Georgi Iliev, Zlatka Valkova-Jarvis, Vladimir Poulkov
- 3.6. Simulation and Test of RSA Algorithm on Mail Server Device
Eriselda Guri Malaj, Galia Ilieva Marinova

**10.30 – 12.15
29.10.2021 г.**

Section Session 4, Hall 3 & [Virtual room 1](#),

**COMMUNICATION ISSUES, SUPERCOMPUTERS, ARTIFICIAL
INTELLIGENCE, MACHINE LEARNING. INTELLIGENT
TRANSPORT SYSTEMS.**

Chairman: Assist. Prof. Rositsa Goleva, PhD

- 4.1. A Study of Documents Management System Based on Web, Case Study: University
Besart Prebreza, Daniela Gotseva, Plamen Nakov
- 4.2. Recommendation Systems Based on Textual Document Analysis
Rrezart Prebreza, Daniela Gotseva, Ognyan Nakov
- 4.3. Face Recognition by Wavelet Transformation, Deep FFNN and ANFIS Approach
Ivelina Balabanova; Georgi Georgiev
- 4.4. Speech Profile Recognition by Fourier Spectral, FFNN and ANFIS Techniques
Ivelina Balabanova; Georgi Georgiev
- 4.5. Design and Deployment of Kubernetes Cluster on Raspberry Pi OS
Milen Hrabarov Todorov
- 4.6. Studying Contactless Charging System for an Electric Scooter
Dimitar Arnaudov, Bozhidar Tashkov, Ivailo Hristov, Ivan Yutidjian, K. Kishkin
- 4.7. Urban Intelligent Transport Management Systems
Ivan Stankov, Varbinka Stefanova-Stoyanova

- 4.8. Comparative Analysis of MTP and DSR Routing Protocols in VANET
Tsvetan Marinov, Maria Nenova, Georgi Iliev
- 4.9. Pasture Research Using Aerial Photography and Photogrammetry
Kalin Dimitrov, Durhan Saliev, Iliyan Damyanov, Tsvetan Valkovski

13.00 – 14.00

29.10.2021 г.

Section Session 5, Hall 3 & [Virtual room 1](#),

**COMMUNICATION CIRCUITS, SIGNALS AND SYSTEMS.
IMAGE PROCESSING AND CODING.**

Chairman: Prof. Seferin Mirtchev, DSc

- 5.1. An Adaptive Pan-Tilt Camera Control for Visual Target Tracking
Plamen Petrov
- 5.2. Two-Dimensional Significant Bit Prediction of Wavelet Image Decomposition Coefficients
Mikola Patlayenko, Abdullah Qays Taher, Olena Osharovska, Valentina Solodka,
Volodymyr Pyliavskiy
- 5.3. Gaussian Adaptive Filtering of Low Resolution Video Using Anisotropic Tensor
Ivo Draganov, Rumen Mironov
- 5.4. The Prediction of Weather's Data for Wind Power System Using Graph Database
Arbër Sh. Perçuku, Ivan S. Stankov
- 5.5. Loss Power Investigation in an LLC DC-DC Converter Operating above the Resonant
Frequency
Tsvetana Grigороva, Aleksandar Vuchev, Stoyan Vuchev

14.15 – 15.15

29.10.2021 г.

Section Session 6, Hall 3 & [Virtual room 1](#),

**ECONOMICS AND MARKETING OF ELECTRONIC
COMMUNICATIONS. EDUCATION IN THE FIELD OF
TELECOMMUNICATION.**

Chairman: Eng. Stefan Patchedjiev, PhD

- 6.1. Designing and Simulation of Bistable Multivibrators with Operational Amplifiers in Multisim
Ivanka Tsvetkova, Adriana Borodzhieva
- 6.2. Low-Cost Remote Laboratory for Cyber-Physical Experiments
Yassen Gorbounov, Hao Chen
- 6.3. Classification of Business Processes in Telecommunications
Anna Bekyarova-Tokmakova, Nevena Mileva, Dimitar Tokmakov
- 6.4. A concept of a New Knowledge Based Multimodal Affective Tutoring System
Miroslav Markov, Todor Ganchev
- 6.5. Synthesis and Implementation of a Digital Control System for a Buck DC-DC Converter
Nikolay Hinov, Kiril Genev, Vladimir Dimitrov

15.30 – 15.55 **Section Session 7, Hall 3 & [Virtual room 1](#),**
29.10.2021 г. **TELECOMMUNICATIONS.**
Chairman: Assoc. Prof. Alexander Nenkov, PhD

7.1. Time series interpolation with Volatility Bridge
Ventsislav Nikolov, Snezhina Yanakieva, Aleksandar Krastev

7.2. Perspectives for the Strategy Industry 4.0
Josif Avramov

16.00 **CLOSING OF THE CONFERENCE, Hall 3 & [Virtual room 1](#).**
29.10.2021 г.

Assoc. Prof. Plamen Vachkov, PhD
Prof. Seferin Mirtchev, DSc

Information for the participants and guests of Telecom 2021

Until 26 October 2021 detailed information on issues of the Conference can be obtained at the National House of Science and Technology in Sofia, 108 Rakovski St., V Floor, Room 506 or by phone: 02 987-97-67.

Email of the conference: telecom.ceec@gmail.com

Website of the conference: <http://e-university.tu-sofia.bg/e-conf/?konf=177>

Registration fee: Participants with/without a paper - Euro 200, Students - Euro 100, IEEE and CEEC Members Discount -15 %. The fee should be preferably paid before October 26, 2021 through a bank transfer on the account of:

UniCredit Bulbank AD, Pl. Sveta Nedelya № 7, 1000

IBAN: BG75 UNCR 9660 1018 8624 01

BIC: UNCRBGSF

CEEC, TELECOM 2021, participant's name

Participants are kindly requested to send a Payment Order copy with details of payment to the Organizing Committee, or present it upon registration.

The Registration Fee can be paid in cash at the Office of CEEC: 108, Rakovsky Str., Sofia 1000.

By way of exception the Registration Fee may be paid upon arrival at the Conference site in cash (Euro 220).

The Registration Fee includes admission to all Conference events, a set of Conference materials (program, abstracts etc.).

The Organizing Committee will award a young author (up to 35 years old) for the best individually presented paper with substantial scientific research contribution.

