

**IX NATIONAL CONFERENCE
WITH INTERNATIONAL PARTICIPATION**

ELECTRONICA 2018



PROGRAMME

**17 – 18 May 2018
Sofia**

**National Science and Technical Centre
108 Rakovski Str.**

**IX NATIONAL CONFERENCE
WITH INTERNATIONAL PARTICIPATION
“ELECTRONICA 2018”**

Organized by:

Technical University of Sofia (TU-Sofia)

The Union of Electronics, Electrical Engineering and Communications (CEEC),

IEEE Bulgarian Section,

and Faculty of Electronic Engineering and Technologies (FEET)



In cooperation with:

Federation of the Scientific and Technical Unions in Bulgaria (FSTU),

Bulgarian Academy of Sciences (BAS),

Technical University - Varna,

Technical University - Gabrovo,

University of Ruse “Angel Kanchev”

VDE – Germany and

Leading Electronics Companies.

IX NATIONAL CONFERENCE WITH INTERNATIONAL PARTICIPATION “ELECTRONICA 2018”

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Ivan Yatchev – FSTU and CEEC

Conference chairmen:

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Seferin Mirtchev – CEEC

Scientific Secretaries:

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Radi Romanski – CEEC	Boris Borisov - Festo production
Ivan Vassilev - CEEC	Petar Statev - ICT Cluster
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**IX NATIONAL CONFERENCE
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	Hour	Event
Thursday 17 May	9.00-12.00	Registration of participants Hall 2
	10.00-12.30	Opening Session Invited Papers Hall 4
	12.30-13.30	Lunch break
	13.30-15.45	Career Forum Hall 4
	15.45-16.00	Coffee break
	16.00-17.30	Discussion: “University education in Electronics and business needs”. „Alumni meeting” , Hall 3
	18.00	Cocktail-party Hall 2
	Friday 18 May	09.00 -10.30
10.45 -12.15		Session 2 Hall 105A Instrumentation and Measurement, Circuits and Systems, Microelectronics and nanoelectronics
12.30-14.00		Session 3 Hall 105A Information and Communication Technologies, Education and Learning Technologies
14.15 -14.45		FORUM “ELECTRONICA”
14.45		Closing Session

СЪЮЗ ПО ЕЛЕКТРОНИКА, ЕЛЕКТРОТЕХНИКА И СЪОБЩЕНИЯ

ФЕДЕРАЦИЯ НА НАУЧНО-ТЕХНИЧЕСКИТЕ СЪЮЗИ

ТЕХНИЧЕСКИ УНИВЕРСИТЕТ – СОФИЯ

ВОДЕЩИ ФИРМИ В ОБЛАСТТА НА ЕЛЕКТРОНИКАТА

ОРГАНИЗИРАТ

КАРИЕРЕН ФОРУМ ЕЛЕКТРОНИКА 2018

17 МАЙ 2018
ЗАЛА 4, ЕТАЖ 2
13:30 ЧАСА

НАЦИОНАЛЕН ДОМ
НА
НАУКАТА И ТЕХНИКАТА

УЛ. „Г.С.РАКОВСКИ“ 108
СОФИЯ



IEEE



FESTO



AMTEST



MM Solutions



Melexis
INSPIRED ENGINEERING



I. Opening Session

Hall 4, Thursday 17 May 2018

10.00 - 12.30.

10.00 - Opening Session

Invited Papers

10.15 - 10.45

INTEGRATED CIRCUITS ELECTRONIC DESIGN AUTOMATION

Dr. Dobromir GAIDAZHIEV

10.45 - 11.15

**NATIONAL CENTER OF EXCELLENCE IN MECHATRONICS AND
CLEAN TECHNOLOGIES - TOPICS AND GOALS**

Prof. George ANGELOV

11.15 - 11.35

**STRATEGY FOR DIGITALIZATION OF THE BULGARIAN ECONOMY IN
THE CONTEXT OF THE EUROPEAN UNION DEVELOPMENT**

Prof. Nikola DURCHEV

II. Career Forum

Hall 4, Thursday 17 May 2018

13.30 - 15.45 Meeting of employers and students (Companies Presentation)

III. Discussion

16.00 -17.30 Hall 3, Thursday 17 May 2018

"University education in electronics and business needs".

„Alumni meeting“

18:00 - Cocktail-party

Hall 2

IV. Sessions

Hall 105A, Friday 18 May 2018

Session 1

Hall 105A, Friday 18 May, 9.00-10.30

Chairpersons: Nikolay HINOV, Dimitar ARNAUDOV

Power Electronics

1. ANALYTICAL INVESTIGATION OF CONVERTER FOR ELECTRIC VEHICLE FAST CHARGING –

Stoyan VUCHEV

2. AN INVESTIGATION OF THE SNUBBER CAPACITORS INFLUENCE ON THE OPERATION OF A PHASE-SHIFT CONTROLLED SERIES RESONANT DC/DC CONVERTER WITH ZERO-VOLTAGE SWITCHING –

Aleksandar VUCHEV , Tsvetana GRIGOROVA

3. EXTENDING THE ZERO-VOLTAGE SWITCHING RANGE OF A PHASE-SHIFT CONTROLLED SERIES RESONANT DC/DC CONVERTER –

Aleksandar VUCHEV, Tsvetana GRIGOROVA

4. WAYS TO DESIGN AN ELECTRIC BICYCLE –

Vladimir Dimitrov

5. SYSTEM LEVEL MODEL AND SIMULATION OF A PARALLEL e-BIKE –

Vladimir Dimitrov, Dimcho Hvarchilkov

6. ANALYSIS AND INVESTIGATION OF METHODS FOR ENERGY RECOVERING FROM BLDC MOTOR –

Ivan MARADZHIEV, Tsvetana GRIGOROVA, Emil DINKOV

7. DESIGN AND SIMULATION OF DC/DC CONVERTER FOR AUTOMOTIVE LED LIGHTENING APPLICATIONS –

Ivan HRISTOV, Nikolay HINOV

8. MODELING OF BOOST CONVERTER-BASED ELECTRONIC LOAD WITH ENERGY RECYCLING CAPABILITY –

Hristiyan Kanchev

9. INFORMATION MODELS OF POWER ELECTRONICS CONVERTERS –

Nikolay HINOV, Dimiter VAKOVSKY

10. POWER SUPPLY FOR HELMHOLTZ COIL –

Dimitar ARNAUDOV, Blagoy SOKEROV

11. INVESTIGATION OF TWO PARALLEL CONVERTERS FOR INDUCTION HEATING, SUPPLYING A COMMON LOAD –

Tsvetozar HRISTOV, Stalmir DENCHEV

Industrial Electronics

12. AUTOMOTIVE DIAGNOSTIC TROUBLE CODE (DTC) HANDLING OVER INTERNET –

Dimitar VRACHKOV , Dimitar TODOROV

13. REAL TIME DIAGNOSTIC IN THE AUTOMOTIVE OVER INTERNET –

Dimitar VRACHKOV , Dimitar TODOROV

14. RESEARCH OF INFLUENCE OF AN ACTIVE DRIVER CIRCUIT WITH di/dt FEEDBACK ON THE DC MOTOR SPEED –

Svetoslav IVANOV, Yanka IVANOVA

15. DATALOGGER FOR SMALL SOLAR SYSTEMS –

Nikolay NEHOVSKI, Nikolay TOMCHEV, Todor DJAMIYKOV, Katya ASPARUHOVA

16. GENERALIZED NET MODELS OF ELECTRONIC CIRCUITS –

Polya GOCHEVA, Nikolay HINOV, Valeri GOCHEV

17. A PHYSICAL MODEL FOR MICRO AND NANOGRID RESEARCH AND TESTING –

Rad STANEV, Lili DIMOVA, Tsvetomir ASENOV, Gergana VACHEVA, Hristiyan KANCHEV, Nikolay HINOV

Session 2

Hall 105A, Friday 18 May, 10.45-12.15

Chairpersons: Marin MARINOV, Ivo ILIEV

Instrumentation and Measurement

1. VIRTUAL EXPLORATION OF WORKING ENVIRONMENTS IN A CLEAN ROOM –

Miglena DONTSCHEWA, Denise STAMATOV, Andreas KÜNZ, Marin MARINOV

2. COMPARISON OF ALGORITHMS FOR SHORT-TERM CLOUD COVERAGE PREDICTION –

Stefan HENSEL, Marin B. MARINOV

3. ANALOG FRONT END MULTIPLEXING FOR AMPEROMETRIC GAS SENSORS –

Marin MARINOV, Georgi NIKOLOV, Borislav GANEV

4. DESIGN AND DEVELOPMENT OF AN ELECTROSTATIC VOLTMETER BASED ON SURFACE POTENTIAL SENSOR –

Sotir SOTIROV, Dimitar TOKMAKOV, Nevena MILEVA, Silviya STOYANOVA-PETROVA, Nadezhda KAFADAROVA

5. COMPUTER AIDED TESTING OF STATIC AND DYNAMIC CHARACTERISTICS OF MAGNETIC GEARS –

Valentin MATEEV, Miglena TODOROVA, Iliana MARINOVA

6. DISTRIBUTED INTERNET OF THINGS SYSTEM FOR MONITORING OF ELECTRIC POWER CONSUMPTION –

Valentin MATEEV and Iliana MARINOVA

7. INTERPOLATION OF GREEN COLOR IN FRAMES FROM CMOS IMAGE SENSOR WITH FPGA -

Todor Djamiykov

8. RESEARCH AND DESIGN OF EFFECTIVE POSITIONING ALGORITHM FOR SOLAR TRACKING SYSTEM –

Katya Asparuhova, Todor Djamiykov and Ivan Spasov

Circuits and Systems

9. PREDICTION OF THE PARAMETERS OF A THERMOELECTRIC BATTERY WITH NEURAL NETWORK –

Ivaylo BELOVSKI, Todor PETKOV, Sotir SOTIROV, Anatoliy ALEKSANDROV

10. MODIFIABLE WEB-BASED ARCHITECTURE MODEL USED IN SENSOR NETWORK –

Iskren KANDOV, Anatoli ALEKSANDROV, Hristian MITEV

11. PORTABLE SYSTEM FOR TELEMETRY OF PATIENTS WITH PACEMAKER –

Serafim TABAKOV , Ivo ILIEV , Irena JEKOVA, Ivan Kanev

Microelectronics and nanoelectronics

12. SURFACE MOUNTING PARALLEL TESTS –

Valentin VIDEKOV

13. CONTACT ELECTRODE BY NANOWIRES TO A COMMON CONDUCTIVE LAYER–

Tobiya KARAGYOZOV, Boriana TZANEVA, Valentin VIDEKOV

14. FUNCTIONAL INKS FOR INKJET PRINTED SENSORS –

Boyanka NIKOLOVA, Georgi NIKOLOV, Elitsa GIEVA, Ivelina RUSKOVA

15. COMSOL NUMERICAL INVESTIGATION OF NEW ACOUSTIC ABSORBER –

Elitsa GIEVA, Ivelina RUSKOVA , Krasimir NEDELICHEV, Ivan KRALOV

16. THREE METHODS FOR PCB VIA METALLIZATION – INVESTIGATION AND DISCUSSION –

Svetozar ANDREEV, Slavka TZANOVA, Nina SPASOVA

17. ELECTROLESS COPPER DEPOSITION FOR ANTENNA APPLICATIONS -

K. Ruskova, Ts. Pavlov , B. Tzaneva, P. Petkov

Session 3

Hall 105A, Friday 18 May, 12.30-14.00

Chairpersons: Seferin MIRCHEV, Kiril ANGUELOV

Information and Communication Technologies

- 1. DEPLOYMENT OF MOBILE EDGE RADIO NETWORK INFORMATION SERVICE –**
Denitsa KIREVA, Evelina PENCHEVA, Ivalylo ATANASOV and Kamelia NIKOLOVA
- 2. THIRD PARTY INITIATED WLAN OFFLOADING –**
Evelina PENCHEVA, Ivalylo ATANASOV, Denitsa KIREVA, Ventsislav TRIFONOV
- 3. MODEL INVESTIGATION AND REALIZATION OF WEB-BASED APPLICATION ABOUT GDPR –**
Radi ROMANSKY, Kiril KIRILOV
- 4. VISUAL MARKER RECOGNITION WITH APPLICATION TO MOBILE ROBOT LOCALIZATION –**
Veska GEORGIEVA, Plamen PETROV, Antonia MIHAYLOVA
- 5. VISION-BASED LINE TRACKING CONTROL FOR NONHOLONOMIC DIFFERENTIAL-DRIVE MOBILE ROBOTS –**
Plamen PETROV, Veska GEORGIEVA
- 6. ULTRASOUND IMAGE PROCESSING FOR IMPROVING DIAGNOSE OF RENAL DISEASES –**
Veska GEORGIEVA, Plamen PETROV, Antonia MIHAYLOVA
- 7. A STUDY OF FILTERS SELECTIVITY WITH MAXIMALLY FLAT RESPONSES WITH RESPECT TO THE HAUSDORFF DISTANCE –**
Peter APOSTOLOV, Alexey STEFANOV and Stoyan APOSTOLOV
- 8. MODIFIED FRACTAL YAGI ANTENNA –**
Boncho BONEV, Peter PETKOV
- 9. THE IMPACT OF LIQUID WATER CONTENT OVER DIFFERENT SEAS OF EUROPE FOR SATELLITE COMMUNICATION –**
Hitesh SINGH, Boncho BONEV, Peter PETKOV, Sarang PATI
- 10. COMPARATIVE ANALYSIS OF BROADCASTING PROTOCOLS IN VANET –**
Tsvetan MARINOV, Maria NENOVA, Georgi ILIEV
- 11. EMBEDDING OF COMMUNICATION AND MEASUREMENT EQUIPMENT IN DRONES –**
Ivo DOCHEV, Liljana DOCHEVA, Stoycho MANEV
- 12. SIMULATION STUDY AND ANALYSIS OF HIGH SPEED SINGLE CHANNEL TRANSMISSION IN OPTICAL COMMUNICATION LINE –**
Krasen ANGELOV, Stanimir SADINOV, Panagiotis KOGIAS, Michail MALAMATOUDIS

13. ENHANCING SMART-HOME ENVIRONMENTS USING INFRARED ARRAYS –
Kalin DIMITROV, Kaloyan DZHEDZHEV, Tsvetan MITSEV

Education and Learning Technologies

14. E – LEARNING ON WIRELESS TELECOMMUNICATION NETWORKS –
Ivan NEDYALKOV, Alexey STEFANOV, Georgi GEORGIEV

15. FPGA SYSTEM FOR REAL-TIME CONTROL OF THERMAL PROCESSES AND ENERGY OBJECTS –
Neli GRANCHAROVA, Rosen SPIROV

16. ARTIFICIAL NEURAL NETWORKS: WHAT CAN THEY LEARN ABOUT COLOR LASER MARKING? –
Pavels CACIVKINS, Lyubomir LAZOV, Edmunds TEIRUMNIEKS, Martins SPERGA, Ingus DILEVKA and Artis VITINS

17. SPECIFICITY OF THE TRAINING OF THE EMPLOYEES IN HIGH-TECHNOLOGICAL ENTERPRISES –
Toni MIHOVA, Kiril ANGUELOV, Alexanadar FERDOV

18. RESEARCH ON INTERACTIONS AMONG UNIVERSITIES AND HIGH-TECHNOLOGICAL ENTERPRISES AT QUALIFICATION OF EMPLOYEES –
Kiril ANGUELOV, Alexanadar FERDOV, Toni MIHOVA,

FORUM “ELECTRONICA”

Hall 105A, Friday 18 May, 14.15-14.45

Chairperson: Nikolay HINOV

