

## CONTENTS OF THE CONFERENCE

### Invited Speaker

- 1 **LASER SPECTROSCOPY FOR UNDERSTANDING OF PULSED SPUTTERING DISCHARGES** 9  
**Nikolay Britun\***  
*\*Center for Low-temperature Plasma Sciences, Nagoya University, Japan  
britun@plasma.engg.nagoya-u.ac.jp*

### Joint Session

- 1 **ATTACKS ON STEGOSYSTEM WITH ALGORITHM LEAST SIGNIFICANT BIT** 11  
**Kravchenko I.O.**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,  
van\_kravchenco@ukr.net*
- 2 **CREATE A PROGRAM TO CONVERT AUTO PHOTOS TO SVG SILHOUETTE** 13  
**Ariychuk O.M\*, Ivanenko D.O\*\***  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,  
\*ariychuk87@gmail.com, \*\* Divanenko1979@gmail.com*
- 3 **DETECTION OF SUBSURFACE FLAWS VIA THE TOTAL INTERNAL REFLECTION ULTRASONIC SENSOR** 15  
**Yuliia Kominko**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601  
yuliia.kominko@gmail.com*
- 4 **KERNEL FUNCTION ESTIMATION IN STATISTICAL MODELS GENERATED BY LEVY'S NOISE** 17  
**D.O. Ivanenko, R.V. Pogorielov**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,  
rostik.kiev@gmail.com*
- 5 **OPTICAL REFLECTION OF MULTILAYER STRUCTURES OF POROUS SILICON FOR MILK QUALITY CONTROL** 19  
**Topchylo A.S.\*, Kozinetz A.V.\*\*, Ivanov I.I.\*\*\***  
*\* Institute of High Technologies, Taras Shevchenko National University of Kyiv, 64 Volodymyrska, 01033 Kyiv, Ukraine,  
\*anna.topchylo@gmail.com, \*\*alk@univ.kiev.ua, \*\*\*ivancko@gmail.com*
- 6 **PHOTOLUMINESCENCE IN POROUS GaAs** 21  
**I.Gavrylchenko\*, Y.Milovanov\*, M.Holovashenko\*, V.A. Skryshevsky\*, A.Zaderko\*, I.Ivanov\*, A.P. Oksanich\*\*, S.E. Pritchinn\*\*, M.G. Kogdas**  
*\* Institute of High Technologies, Taras Shevchenko National University of Kyiv, e-mail: ir.gavrill1@gmail.com  
\*\* Kremenчук Mykhaylo Ostrohradskyi National University, 39600 Pershotravneva str.20, Kremenчук*
- 7 **SIC/SI FILM-SUBSTRATE SYSTEM FOR LOW COST FIELD ELECTRON EMITTERS** 23  
**Andrii Goriachko\*, Maksym Strikha\*\***  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,  
\*goriachko@knu.ua, \*\*maksym.strikha@gmail.com*

8	<b>SIMULATION AND MATCHING OF THE PIEZOELECTRIC TRANSDUCER LOADED WITH ACOUSTIC RESONATOR</b>	25
---	---	----

**Mazniev Andrii**

*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,  
andmazniev@gmail.com*

### **Medical Physics**

1	<b>APPLICATION OF THE METHOD OF THE PRINCIPAL COMPONENTS TO EPILEPTIC DATA OF RATS WITH VARIATION OF EPOCH PARAMETER</b>	28
---	--	----

**Illia Pidvalnyi\***, **Anna Kostenko\*\***, **Viktoria Gaidar\*\*\***, **Oleksandr Sudakov\*\*\*\***

*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,*

*\* illia.pidvalnyi@knu.ua, \*\* nicaragua753@gmail.com, \*\*\* gaidar.viktoria@gmail.com,  
\*\*\*\* sudakov.oleksandr@gmail.com*

2	<b>DETECTION AND PREDICTION OF HUMAN BEHAVIOR USING EEG SIGNALS</b>	30
---	---	----

**\*\*D. Zhytnyk, S. Pavlyk, \*O. Sudakov**

*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,*

*\*saa@knu.ua, \*\*radiodima2000@gmail.com*

3	<b>DEVELOPMENT OF AN ALGORITHM FOR AUTOMATED CLASSIFICATION OF ELECTROENCEPHALOGRAPHIC DATA FOR THE DETECTION OF EPILEPTIC SEIZURES</b>	32
---	---	----

**Anna Kostenko\***, **Illia Pidvalnyi\*\***, **Viktoria Gaidar\*\*\***, **Oleksandr Sudakov\*\*\*\***

*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,*

*\* nicaragua753@gmail.com, \*\* illia.pidvalnyi@knu.ua, \*\*\* gaidar.viktoria@gmail.com,  
\*\*\*\* sudakov.oleksandr@gmail.com*

4	<b>INFLUENCE OF CORONA DISCHARGE AND ITS IMPACT ON BIOLOGICAL OBJECTS IN THE EXAMPLE OF SPORES AND MYCELIUM OF FUNGI</b>	34
---	--	----

**Yu. Veremii<sup>1</sup>, B. Sokolovskyi<sup>1</sup>, N. Tsvyd<sup>2</sup>, V. Chernyak<sup>1</sup>, O. Nedybaluk<sup>1</sup>,  
M. Sukhomlyn<sup>3</sup>, Eu. Martysh<sup>1</sup>**

*<sup>1</sup>Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv*

*<sup>2</sup>Taras Shevchenko National University of Kyiv, Educational and Scientific Center "Institute  
of Biology and Medicine", Kyiv, Ukraine.*

*<sup>3</sup>Institute for evolutionary ecology of the National Academy of Sciences of Ukraine,  
Kyiv, Ukraine.*

*e-mail: veremii@i.ua*

5	<b>PHASE-PLANE TRAJECTORIES ANALYSIS OF EEG FOR EXTRACTING STATE FEATURES</b>	36
---	---	----

**Chaikivskyi Pavlo\***, **Radchenko Serhii\*\***

*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,*

*\*chaykivsky@gmail.com, \*\*spr@univ.kiev.ua*

6	<b>PLANAR IMAGES RECONSTRUCTION BASED ON NOISE STATISTICAL EVALUATION</b>	41
---	---	----

**Shtaiura Anastasiia\***, **Radchenko Serhii\*\***

*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,*

*\*shtaura@ukr.net, \*\*spr@univ.kiev.ua*

7	<b>MR-IMAGING FOR CHEMICAL SHIFT COMBINED INHOMOGENEOUS AREAS</b>	43
---	---	----

**\*A.O. Komarov, \*\*A.V. Netroba, O.O. Naguliak**

*Faculty of RadioPhysics, Electronics and Computer Systems,  
Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine,  
01601,*

*\*komarovandrej420@gmail.com, \*\*avn@univ.kiev.ua*

8 **MACHINE RECOGNITION OF PEDIATRIC PNEUMONIA BY CHEST X-RAYS** 45

**Viacheslav Kravchenko\*, Andriy Konovalov\*\***

*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,*

*\*edocsil@knu.ua, \*\*konam@knu.ua*

### **Plasma Physics**

1 **1D HYBRID MODEL OF THE MAGNETRON DISCHARGE** 48

**A.A. Derkach, O.Yu. Kravchenko\***

*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,*

*\*kay@univ.kiev.ua*

2 **EFFECT OF TREATED BY COLD ATMOSPHERIC PLASMA PGA ON FUNGAL  
MYCELIUM GROWING** 50

**Veremii Yu\*., Tsvyd N\*\*, Chernyak V\*, Sukhomlyn M\*\*., Martysh Eu. \***

*\*Taras Shevchenko National University of Kyiv, Faculty of Radio Physics, Electronics and  
Computer Systems, 03127, Kyiv, Hlushkova Avenue, 4g.*

*\*\*Taras Shevchenko National University of Kyiv, Educational and Scientific Center 'Institute  
of Biology and Medicine' 03022, Kyiv, Hlushkova Avenue, 2.*

*veremii@i.ua*

3 **HYBRID PLASMA-CATALYTIC REFORMING OF ETHANOL IN VORTEX  
FLOWS AT DIFFERENT TEMPERATURES INSIDE REFORMING REACTOR** 52

**I.I. Fedirchuk\*, V.Ya. Chernyak, V.V. Iukhymenko, M.M. Sydorov, O.M. Tsybaliuk**

*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,*

*\*igor.fedirchuk@univ.net.ua*

4 **IMPACT OF CORONA DISCHARGE ON MICROORGANISMS INACTIVATION** 54

**N.S. Kot\*, O.A. Nedybaliuk**

*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,*

*\*tashaaakot@gmail.com*

5 **INFLUENCE OF LOW-TEMPERATURE PLASMA OF DBD ON  
PLANT SEED GERMINATION** 56

**I.R. Byshovyi\*, O.A. Nedybaliuk\*\*, D.M. Shchur**

*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,*

*\*bushovuyivan@gmail.com, \*\*oanedybaliuk@gmail.com*

6 **INVESTIGATION OF THE LOW-TEMPERATURE PLASMA INFLUENCE  
ON PLANT GROWTH** 58

**D.M. Shchur\*, O.A. Nedybaliuk, I.R. Byshovyi**

*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,*

*shchur.dmitriy@gmail.com*

7 **KINETICS OF NITROGEN OXIDE FORMATION IN PLASMA OF HIGH-  
FREQUENCY INDUCTIVE DISCHARGE** 60

**Bielienko Oleksandr\*, Valeriy Chernyak\*\***

*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,*

- \* d410227@gmail.com, \*\*chernyak\_v@ukr.net
- 8      **MEASUREMENT OF ELECTRICAL PARAMETERS OF POWER SUPPLIES OF ARC DISCHARGES**      62  
          **A. Biletsky\*, V. Kashchenko\*\***  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601, E-mail: belanton11@gmail.com, vitykashchenko@gmail.com*
- 9      **MODES OF TRANSILLUMINATION OF THE DENSE PLASMA LAYER VIA ELECTROMAGNETIC BEAM**      64  
          **B.R.Mykhailenko, I.O.Anisimov**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601, mihaylenko.bogdan12@gmail.com*
- 10     **PLASMA SPECTROSCOPY OF ELECTRIC ARC BETWEEN STEEL ELECTRODES**      66  
          **G. Kwartnyk\*, A. Veklich, A. Murmantsev**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601, \*grigoriykvartnik@gmail.com*
- 11     **PLASMA-LIQUID SYSTEM WITH REVERSE VORTEX AIR FLOW**      68  
          **A.O. Poliakov\*, O.A. Nedybaliuk**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601, \*ft8475@gmail.com*
- 12     **REGULAR AND STOCHASTIC DYNAMICS OF THE DUFFING OSCILLATOR EXCITED BY HARMONIC FORCE**      70  
          **\*Sikorski P.K., Anisimov I.O.**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601, \* sikorskiphilipp@knu.ua.*
- 13     **STUDY OF ROTARY GLIDING DISCHARGE OF ATMOSPHERIC PRESSURE AT DIFFERENT GEOMETRIES OF ELECTRODES**      72  
          **V. Chernyak\*\*, V. Iukhymenko\*, K. Iukhymenko, V. Haponenko**  
*Faculty of Radio Physics, Electronics and Computer Systems, Taras Shevchenko National University of Kyiv, Volodymyrska Street, 64/13, 01601, Kyiv, Ukraine, e-mail: \*yvitaliy@ukr.net, \*\*chernyak\_v@ukr.net*
- 14     **THE ROLE OF BROMINE PLASMA PRETREATMENT IN FUNCTIONALIZATION OF CARBON FIBER WITH SULFUR -CONTAINING GROUPS**      74  
          **L.M. Grishchenko\*, T.M. Bezugla\*, A.V. Vakaliuk\*, V.V. Trachevskiy\*\*, O.V. Mischanchuk\*\*\***  
*\* Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601, liudmyla.grishchenko@gmail.com*  
*\*\*National Aviation University, Kyiv 03058, Ukraine, sg.kiev.@zeos.net*  
*\*\*\*O.O. Chuiko Institute of Surface Chemistry, NAS of Ukraine, Kyiv 03164, Ukraine, bigsnake@i.ua*
- 15     **PLASMOCHEMICAL SYNTHESIS OF OPTICALLY ACTIVE SUBSTANCES**      76  
          **Valeriy Ya. Chernyak\*, Vitalii V. Iukhymenko, Daniil D. Tretiakov, Kostia V. Iukhymenko, Yevgen A. Oberemok, Igor I. Fedirchuk**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601, \*chernyak\_v@ukr.net*

## Radio Engineering and Communications

- 1     **ALGORITHM FOR SELECTION OF MASS-SPECTROMETRIC DESCRIPTORS OF INDIVIDUAL FRAGMENTS OF A MOLECULE BY THE METHOD OF DECOMPOSITION OF ITS FULL MASS-SPECTRUM**     80  
          **Serge Olszewski, Hryshaieva Yuliia**  
*Taras Shevchenko National University of Kyiv, Faculty of Radio Physics, Electronics and Computer Systems, Kyiv, Ukraine, Glushkova Ave. 4g, e-mail: olszewski.serge@gmail.com, grishaeva-yulia@ukr.net.*
- 2     **ANTENNA MODULE WITH HARDWARE BEAMFORMING FOR BASE STATIONS OF SMALL AND MEDIUM COVER RADIUS**     82  
          **Kvachenok I.**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601, kvachenok.iv@ukr.net*
- 3     **AUTOMATED SYSTEM OF MEASUREMENT CURRENT-VOLTAGE CHARACTERISTICS OF FERROMAGNETIC SEMICONDUCTORS ON THE ARDUINO BASE**     83  
          **Horbaliuk V.D., Malyshev O.V., Malyshev V.Yu. and Moiseienko\* V.A.**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601, \*vamrpd@gmail.com*
- 4     **CALCULATION METHOD OF RADIO LINE ENERGY STOCK "SPACE VEHICLE STATION"**     85  
          **Kharchenko Alina**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601, alinahar6720@gmail.com*
- 5     **ESTIMATION OF CORRECTIONS FOR RELATIVE HUMIDITY OF LUNMISTOAIR STATIONS**     88  
          **A. Antonenko\*, V. Boretskij, O. Zagaria**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601, \*andreww131998@gmail.com*
- 6     **EXPERIMENTAL STAND OF THE GYROSTABILIZED PLATFORM**     90  
          **R. Andriichuk\*, V. Boretskij**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601, \*r.andriichuck@gmail.com*
- 7     **FEATURES OF OPERATION AND USE OF MICROCONTROLLERS STM32 IN APPLIED PHYSICS**     92  
          **Yashunin\* O.B., Bondarenko V.V., Veklich A.N., Fesenko S. O.**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601, \*oleksandr.yashunin@gmail.com*
- 8     **MODEL OF NON-LINEAR ELEMENT OF ARTIFICIAL NEURON BASED ON ANALOGUE ELECTRONICS DEVICES**     94  
          **I.I. Bekh\*, S.O. Goz**  
*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601, \*sun@univ.kiev.ua*
- 9     **RESEARCH ON THE WORK OF THE SYSTEM OF TEST DIAGNOSTICS FOR**     97

**THE RESONATOR'S UNIT OF MAGNETRON BY MEANS OF IMITATION  
MODELING**

**Olszewski S.V., Tanasiichuk\* Ya. V.**

*Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,  
\*tanasiichukwork@gmail.com*

10

**SIMULATION OF WIRELESS SENSOR NETWORK FOR DETECTION AND  
LOCALIZATION OF ELECTROMAGNETIC WAVES EMITTERS**

99

**Synhaivskyi V. V.\*, Druzhynin, V.A.\*\*, Felinskyi G.S.\***

*\* Faculty of Radiophysics, Electronics and Computer Systems of Taras Shevchenko National  
University of Kyiv, 64/13, Volodymyrska Street, Kyiv, Ukraine, 01601,  
vladssss19@gmail.com*

*\*\*National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"  
v\_druzhinin@ukr.net*