

XI INTERNATIONAL SCIENTIFIC CONFERENCE “ELECTRONICS AND APPLIED PHYSICS”

*Taras Shevchenko National University of Kyiv
Faculty of Radio Physics, Electronics and Computer Systems
October, 21-24, 2015, Kyiv, Ukraine*

October, 21, 2015

10:00-17:00 **Registration of the participants of the Conference**
(Foyer of Faculty of Radio Physics, Electronics and Computer Systems,
building No 4 g, Acad. Glushkov Avenue)

October, 22, 2015

10:00-12:00 **Registration of the participants of the Conference**
(Foyer of Faculty of Radio Physics, Electronics and Computer Systems,
building No 4 g, Acad. Glushkov Avenue)

Plenary session (auditorium # 42)

12:30 **Opening ceremony. Prof. I. O. Anisimov, Dean of the Faculty of Radio
Physics, Electronics and Computer Systems**

Invited Lecture

Likholyt Mykola Ivanovych

*Corresponding member of the National Academy of Science of Ukraine,
Director-Chief Designer of the state enterprise “Arsenal”*

15:00-19:00 **Walking-tour (excursion) in the center of Kyiv (start from Foyer of
Faculty of Radio Physics, Electronics and Computer Systems)**

October, 23, 2015

10:00-17:00 Topical Sessions

1. LASER PHYSICS AND OPTOELECTRONICS

1 THE EFFECT OF SEMICONDUCTOR LASER LIGHT SOURCES ON THE PROCESS OF THE DYNAMIC STORING OF ANALOG INFORMATION IN FIBER-OPTIC STORAGE DEVICES

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2 FEMTOSECOND FIBER LASER FOR HAIR REMOVAL

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61000, Lenina ave, 14, Kharkov, Ukraine, e-mail: gnatenko-s@mail.ru*

3 THE APPLICATION OF THE NEAR OPTICAL LOCATION FOR MEASURING THE REFLECTIVITY OF AN OBJECT

I.A.Ivanchenko, V.I. Santoniy, L.M. Budiyanskaya, Ya.I. Lepikh

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4 CALCULATION OF PHOTONIC CRYSTALS WITH DEFECTS FOR STORAGE COOLED ATOMS AND MOLECULES

Khorolets L.S., Machehkhin Y.P

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5 GENERATION OF RADIATION WITH ULTRA-WIDE RANGE

Y.G. Limarenko, Yu.P. Machehin

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6 OPTICAL CHARACTERISTICS OF SILICON FILMS STRUCTURES

A.S. Sutyagina, O.V. Prokopenko, T.V. Rodionova

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7 SLOWLY VARYING AMPLITUDE APPROXIMATION IN OPTICS

Ovechko V., Kornienko A., Myhashko V.

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8 BASIC PROBLEMS OF DEVELOPMENT AND APPLICATION OF RELAXED OPTICS

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9 THE STUDY POLARIZATION CONTROL USING THE LC CELLS INSIDE THE RESONATOR OF A FIBER FEMTOSECOND LASER

Gnatenko A.S., Vasko K.A., Aleksieieva K.D.

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10 **DIFRACTION OF OPTICAL WAVEGUIDE MODES ON DOMAIN STRUCTURE IN
YTTRIUM FERRIT GARNET FILM**
V.O. Rostocki, Yu.O. Gayday, V.V. Andrusenko, O.M. Tynku
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11 **PHOTONICS INTEGRATED ACTIVE-PIXEL PHOTO DETECTOR**
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12 **HOLOGRAPHIC GRATING RECORDING ON CARBAZOLE-CONTAINING
POLYMERS**
A. Meshalkin*, A. Neguta*, C. Covalenco*, S. Robu, Ts. Kryskov***, T. Lyuba*****
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2. PHYSICS OF MAGNETISM

1 **DIPOLAR STABILIZATION OF A LARGE SIZE BULLET MODE IN ONE-
DIMENSIONAL SPIN-TORQUE OSCILLATORS**
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2 **FORMATION OF BOSE-EINSTEIN MAGNON CONDENSATE VIA DIPOLAR AND
EXCHANGE THERMALIZATION CHANNELS**
D. A. Bozhko*, P. Clausen*, A. V. Chumak*, B. Hillebrands*, and A. A. Serga***
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Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Str., City of Kyiv, Ukraine,
01601*

3 **THE FEATURES OF TETRAGONAL ANTIFERROMAGNETS STATES
IN THE ANGULAR PHASE**
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4 **RESEARCH OF μ - NEGATIVE STRUCTURE BASED ON SPLIT RING RESONATORS
AND FERRITE PLATES WITH FREQUENCY CONTROL IN C-BAND**
Lenyk B. Y.¹, Basyuk I.V.², Chorniy V.S.³, Skripka S.L., Nechyporuk O.Y.⁴
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5 **UPPER AND LOWER THRESHOLD CURRENT DENSITIES FOR A CIRCULAR
DUAL-FREE-LAYER SPIN-TORQUE NANO-OSCILLATOR AS A FUNCTION OF ITS
RADIUS**

Kozynets' O.V*., Prokopenko O.V.

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6 **ACCURATE DETERMINATION OF AN EXTERNAL MICROWAVE SIGNAL
FREQUENCY IN A SYSTEM OF TWO INDEPENDENT SPIN-TORQUE MICROWAVE
DETECTORS**

Shanidze R.G.*, Artemchuk P.Yu.., Prokopenko O.V.**

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7 **PRESSURE INFLUENCE ON MAGNETIC BEHAVIOR OF SPIN-CROSSOVER SOLIDS**

Iu. V. Gudyma*, V.V. Ivashko*, A. Iu. Maksymov* **

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Drive, LA 70148 New Orleans, USA*

8 **THE INFLUENCE OF MECHANICAL DEFORMATIONS ON FERROMAGNETIC
RESONANCE LINEWIDTH IN YTTRIUM-IRON GARNET EPITAXIAL FILMS**

Moiseienko V.A., Popov M.O., Belimenko R.Iu.

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9 **MICROWAVE PROPERTIES OF MoRe SURFACE ELECTROMAGNETIC WAVE
RESONATOR AT ROOM TEMPERATURE**

V.Yu. Malyshev*, O.V. Prokopenko*, E.M. Rudenko, I.V. Korotash**, A.A. Krakovny****

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10 **MAGNETIC RESONANCE PHENOMENA IN NANOCOMPOSITES Co/Al₂O₃**

A.I. Dmitriev¹, G.V. Lashkarev¹, M.V. Radchenko¹, M.E. Bugaiova¹, W. Knoff², T. Story².

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Ukraine, Krzhizhanovskogo str. 3, Kyiv, Ukraine. e-mail: dmitr.kiev@gmail.com
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11 **SPIN-ORBITAL ENHANCEMENT OF TENSOR MAGNETIC SUCCEPTIBILITY
COMPONENTS IN WEAK FERROMAGNET**

Popov M.A., Chumak H.L.

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12 **CURRENT-PHASE RELATION IN JOSEPHSON JUNCTIONS BASED
ON A Mo-Re ALLOY AND FERROMAGNETIC Ni₂MnGa INTERLAYER**

**E.M. Rudenko*, I.V. Korotash*, A.A. Krakovny*, V.K. Perepelytsya*, Yu.V. Shlapak*,
D.A. Solomakha*, M.A. Belogolovskii*, V.Yu. Malyshev**, O.V. Prokopenko****

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- 13 **METASTABLE RESISTIVE STATES IN WIDE SUPERCONDUCTING Mo-Re ALLOY STRIPS UNDER STRONG SPIN-POLARIZATION INJECTION FROM A HALF-METAL**
E.M. Rudenko*, D.A. Solomakha*, I.V. Korotash*, P. Febvre,
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- 14 **IMPROVEMENT OF MAGNETIC PROPERTIES OF THE ANNEALED FePt/Ag/FePt THIN FILMS**

Sidorenko S.I., Makogon U.M., Voloshko S.M., Vladymyrskyi I.A., Orlov A.K.*

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- 15 **TRANSIENT HIGHLY-NON-UNIFORM DYNAMICAL STATES UNDER AN ACTION OF FEMTOSECOND LASER PULSE**

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- 16 **SPIN WAVES IN A FERROMAGNETIC FILM WITH A PERIODICAL SYSTEM OF ANTIDOTS. BLOCH-TYPE SOLUTIONS**

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- 17 **СПЕКТР ВЛАСНИХ ЗБУДЖЕНЬ КОНСЕРВАТИВНОГО СОЛІТОНУ В МАГНІТНИХ ПЛІВКАХ З ПЕРПЕНДИКУЛЯРНОЮ МАГНІТНОЮ АНІЗОТРОПІЄЮ**

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- 18 **MAGNETIC PHASE TRANSITION FIRST TYPE IN Fe-Ni-Mn ALLOYS**

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- 19 **EQUILIBRIUM STATES OF PERMALLOY SPHERICAL NANOSHELL**
Mykola Sloika*, Denis Sheka*, Volodymyr Kravchuk, Yuri Gaididei****

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- 20 **SPIN-WAVE RESONANCE MAIN MODE IN INHOMOGENEOUS FILMS**
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3. SURFACE PHYSICS, NANO- AND MICROELECTRONICS

1 **CARBON FILMS SYNTHESIS ON DIFFERENT SUBSTRATES BY MAGNETRON
SPUTTERING**

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2 **ABSORPTION OF COMPOSITE ACCEPTOR-STRONG DONOR:
CHALCOGENIDE GLASS- METAL PHTHALOCYANINE**

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3 **THE EFFECT OF NANOSCALE YTTRIUM OXIDE INCLUSIONS ON THE
DISTRIBUTION OF INTERSTITIAL NITROGEN ATOMS IN NITRIDED IRON**

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4 **PULSED ELECTRODEPOSITION OF HIGHLY HYDROPHOBIC 1D ZINC OXIDE
COATINGS**

K.S. Klepikova^{*}, N.P. Klochko^{*}, V.R. Kopach^{*}, G.S. Khrypunov^{*}, Y.O. Myagchenko^{},
E.E. Melnychuk^{**}, V.M. Lyubov^{*}, A.V. Kopach^{*}**

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5 **FEATURES OF HETEROSTRUCTURE 95%In₂O₃+5%SnO₂/ns-Si WHEN EXPOSED TO
LIGHT AND WHEN CHANGING THE SURROUNDING GAS ENVIRONMENT**

Lushkin O.Ye., Telega V.M., Holoborodko N.S.

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6 **REGULARITIES IN THE LOCATION OF OBJECTS ON THE SURFACE SnTe**

Ya. P. Saliy, N. I. Bushkov, I. S. Bylina

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7 **NOVEL FUNCTIONALITY OF JOSEPHSON JUNCTIONS WITH RESONANCE-
PERCOLATING CHARGE TRANSPORT**

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8 **QUANTUM-CHEMICAL STUDY OF THE PROPERTIES B⁺ ION-IMPLANTED
SiO₂/SI(100) INTERFACE**

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9 **THE SELF-ORGANIZATION OF NANOSCALE DEFECTS WITHIN PLASTIC DEFORMATION**

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10 **THE ENERGY MODEL OF THE Si-O-Gd PHOTOCATHODE WITH NEGATIVE ELECTRON AFFINITY**

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**4. PHYSICS OF SEMICONDUCTORS AND DIELECTRICS,
SEMICONDUCTOR'S DEVICES**

1 **DIELECTRIC-METAL COMPOSITES WITH DISPERSED INCLUSIONS OF COPPER FOR MICROWAVE APPLICATIONS**

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2 **MICROSTRUCTURAL AND MÖSSBAUER SPECTROSCOPY STUDIES OF NICKEL-COBALT FERRITES NANOPARTICLES**

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3 **THE RESEARCH OF DYNAMIC CHARACTERISTICS OF SILICON IMPATT DIODE 2 MILLIMETER WAVELENGTH IN LARGE-SIGNAL REGIME**

A. V. Bychok^{1,2}, A. V. Zorenko², S. A. Zhuk³

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4 **LOW TEMPERATURE PERFORMANCES OF DOPED GASB WHISKERS**

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²International Laboratory of High Magnetic Fields and Low Temperatures, Gajowicka 95, Wroclaw, Poland

5 **FLUCTUATIONS IN CURRENT WITH LARGE AMPLITUDE IN GERMANIUM SAMPLES AT NITROGEN TEMPERATURE**

Grigoruk V.I., Oberemok E.S., Pavliuk S.P., Telega V.M.

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- 6 **ANALYTICAL CALCULATION OF EFFECTIVE SUSCEPTIBILITY OF INFINITY-LONG NANOSTRIPE. SCATTERING OF SURFACE PLASMON POLARITON ON TWO-DIMENSION NANOSTRIPE**
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- 7 **OPTICAL TRANSMISSION OF THE CHALCOGENIDE GLASSES $As_2S_3:Ag$**
Ts.A.Kryskov*, A.Yu.Meshalkin, A. Neguta**, C. Covalenco**, A.P.Payuk***, T.S.Lyuba*, S.V.Optasyuk***
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**** V. Lashkaryov Institute of Semiconductor Physics National Academy of Science of Ukraine,*
- 8 **THERMOELECTRIC PROPERTIES OF SEMICONDUCTING COMPOUNDS $PbTe$, $Pb-Sb-Te$ AND $Pb-Ag-Sb-Te$ (LAST)**
Ts. Kryskov, T. Lyuba, S. Optasyuk, O. Rachkovsky, I. Tkachuk, B. Tsykaniuk
Ivan Ogienko Kamyanyets-Podilsky National University, 61 Ogienko str, Kamyanyets-Podilsky, 32300, Ukraine. e-mail: fizkaf@ua.fm
- 9 **INVESTIGATION OF SENSOR PROPERTIES OF POROUS SILICON BASED BRAGG REFLECTORS AFTER HIGH TEMPERATURE ANNEALING**
Oleksandr S. Kyslovets, Ivan I. Ivanov, Yuriy G. Shulimov
Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Str., City of Kyiv, Ukraine, 01601, email: alex.kislovets@gmail.com
- 10 **ON VAN DER WAALS INTERACTION BETWEEN PARTICLES WITH LARGE POLARIZABILITIES**
K. Makhnovets*, A. Kolezhuk**
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- 11 **ON THE POSSIBILITY OF EXOTIC ATOM FORMATIONS GENERATION AT THE CHANNELING OF ANTI-PROTONS ALONG THE GENERAL PLANES IN LITHIUM CRYSTAL**
N.V. Maksyuta, V.I. Vysotskii
Faculty of Radio Physics, Electronics and Computer Systems, Taras Shevchenko National University of Kyiv, 64/13, Volodymyrska Str., City of Kyiv, Ukraine, 01601, e-mail: maksyuta@mail.univ.kiev.ua
- 12 **THERMODYNAMICS OF POINT DEFECTS AND HOMOGENEITY ZINC TELLURIDE**
V.V. Prokopiv I.V. Gorichok, M.A. Pylyponyuk, I.V. Maliarska
Vasyl Stefanyk Prekarpathian University, Shevchenko Str., 57, Ivano-Frankivsk, 76025, Ukraine, e-mail: goritchok@rambler.ru
- 13 **ON RELIABILITY OF SPECTRAL EXPONENT ERROR FORMULA FOR LF NOISE**
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- 14 **ACCEPTOR COMPLEXES IN $ZnO:P$ THIN FILMS**
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- 15 **OPTICAL ABSORPTION AND DISORDER IN THE $AS_{40}S_{60-x}Se_x$ VITREOUS ALLOYS**
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- 16 **DESIGN AND MANUFACTURE OF MULTIFUNCTIONAL MEASURING COMPLEX FOR RESEARCH OF DEEP LEVEL DEFECTS IN SEMICONDUCTORS.**
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- 17 **PHOTOGENERATION AND RECOMBINATION PROCESSES IN SI/GE HETEROSTRUCTURES WITH GE NANOCCLUSERS**
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5. MEDICAL PHYSICS

- 1 **INVESTIGATION OF CHANGES IN TIME PARAMETERS OF CONDITIONED REFLEX BY AUTOMATIC SYSTEM OF REGISTRATION UNDER INFLUENCE OF MEMANTIN**
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- 2 **COMPLEXATION AND MUTUAL DIFFUSION IN LIQUID SOLUTIONS OF CHLOROFORM**
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- 3 **APPLICATION FEATURES OF THE VARIOUS INTENSIFYING SCREENS**
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- 4 **MRI RECONSTRUCTION FOR INCOMPLETE DATA IN SIGNAL K-SPACE**
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- 5 **VISCOSITY OF BINARY NONELECTROLYTE LIQUID MIXTURES OF CCl_4 WITH SIMPLE ALCOHOLS**
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6 **SUPERCRITICAL FLUID EXTRACTION BY CARBON DIOXIDE OF COMPLEXES OF MOLYBDENUM FOR APPLICATION IN MEDICINE**

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7 **ABSORPTION AND BIOCOMPATIBLE PROPERTIES OF SiO₂, CaO AND AUTOMATED SYSTEM OF ANISOTROPY VISUALIZATION**

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8 **MAPPING THE CONDUCTIVITY OF BRAIN TISSUES**

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6. PLASMA PHYSICS

1 **SOLUTION OF LINEAR NAVIER - STOKES EQUATIONS AND MATHEMATICAL DESCRIPTION OF CYLINDRICAL ELEMENTARY CONVECTION CELL**

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2 **INFLUENCE OF RATIO BETWEEN ACTIVATED AND NON-ACTIVATED OXIDANT FLOWS ON PLASMA-CATALYTIC REFORMING OF GREEN HYDROCARBONS**

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3 **TRANSITION RADIATION OF THE MOVING POINT CHARGE IN PLASMA TAKING INTO ACCOUNT THE BACKGROUND PLASMA ELECTRONS' MOTION**

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4 **STUDY OF CURRENT-VOLTAGE CHARACTERISTICS OF ROTATING GLIDING DISCHARGE WITH OSCILLOSCOPE**

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- 5 **THE DYNAMICS OF DUST PARTICLES IN THE PLASMA JET**
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- 6 **EFFECT OF THE DC ELECTRIC FIELD NONUNIFORMITY ON GAS BREAKDOWN**
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- 7 **POSITIVE COLUMN OF THE GLOW DISCHARGE IN ARGON**
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- 8 **CUBIC-NONLINEAR THEORY OF THE PLASMA-BEAM SUPERHETERODYNE FEL DOPPLERTRON TYPE WITH NON-AXIAL INJECTION OF ELECTRON BEAM**
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- 9 **SIMULATION OF GUIDING OF SHORT-FOCUS ELECTRON BEAM IN THE EGUIPOTENCIAL CHANNEL OF HIGH VOLAGE GLOW DISCHARGE ELECTRON GUNS**
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- 10 **MEASURING OF THE ELECTRIC FIELD OF A POSITIVE COLUMN IN ARC DISCHARGES**
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- 11 **PLASMA-CATALYTIC TECHNOLOGY FOR NANOMATERIALS PRODUCTION**
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- 12 **INVESTIGATION OF MICRODISCHARGE PARAMETERS AT ATMOSPHERIC PRESSURE**
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7. COMPUTER ENGINEERING

- 1 **BEHAVIORAL AND STRUCTURAL LEVELS OF THE VHDL HARDWARE DESCRIPTION LANGUAGE: PURPOSES AND APPLICATION FEATURES**
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8. RADIO ENGINEERING AND COMMUNICATIONS

- 1 **THE MILLER EFFECT IN RESONANCE AMPLIFIERS**
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- 2 **FRACTAL DIMENSION OF ATTRACTOR OF KIASHKO-PIKOVSKI-RABINOVYCH
GENERATOR**
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- 3 **PECULIARITY OF THE LC-OSCILLATOR IN SATURATION REGIME**
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- 4 **DESIGN AND CONSTRUCTION OF LAYOUT OF LABORATORY SPECTROANALYZER
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- 5 **EFFECT OF INERTIA ON THE JOB OF THE TRANSISTOR OSCILLATOR**
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- 6 **USING WIRELESS PLATFORM-BOTS WITH AUTOMATIC NAVIGATION FOR PEOPLE
WITH PROBLEMS OF MUSCULOSKELETAL SYSTEM**
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- 7 **PHYSICS, RADIOPHYSICS AND ECOLOGY ASPECTS OF COSMIC ACTIVITY**
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- 8 **RADIOPHYSICAL EFFECTS OF THE MARCH 20, 2015 SOLAR ECLIPSE OVER
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9. POLARIMETRY: THEORY AND APPLICATIONS

- 1 **ELLIPSOMETRY PARAMETERS OF NANOCRYSTALLINE SILICON THIN FILMS.**
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- 2 **POLARIMETRIC CHARACTERISATION OF BIOMEDICAL SAMPLES**
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- 3 **POLARIMETRIC CHARACTERIZATION OF SAMPLES IRRADIATED WITH GAMMA RAYS**
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- 4 **APPLICATION DIELECTRIC ISOTROPIC PLATE IN TECHNIQUE FOR DETERMINE THE DIRECTION OF LIGHT BEAM**
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- 5 **NEW ELECTRODYNAMIC REPRESENTATION OF SPATIAL DISPERSION AND NORMAL WAVES IN A DISPERSIVE ISOTROPIC MEDIA**
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- 6 **NEW METHOD FOR SATELLITE SPECTROPOLARIMETERS OPTICAL SCHEMA ABERRATION AND POLARIZATION CALCULATION**
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- 7 **RESIDUAL STRESSES IN TRANSPARENT GLASS-CERAMICS**
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