



FOURTH INTERNATIONAL CONFERENCE ON RADIATION  
AND APPLICATIONS IN VARIOUS FIELDS OF RESEARCH

May 23 - 27, 2016 | Niš | Serbia | [rad-conference.org](http://rad-conference.org)

# BOOK OF ABSTRACTS



**PUBLISHER:** University of Niš, Faculty of Electronic Engineering  
P.O.Box 73, 18000 Niš, Serbia  
www.elfak.ni.ac.rs

**FOR THE PUBLISHER:** Prof. Dr Dragan Mančić

**EDITOR:** Prof. Dr Goran Ristić

**COVER DESIGN:** Vladan Nikolić, PhD

**TECHNICAL EDITING:** Vladan Nikolić, PhD and Sasa Trenčić, MA

**PROOF-READING:** Saša Trenčić, MA and Mila Aleksov, MA

**PRINTED BY:** Sven, Niš

**PRINT RUN:** 50 copies

*The Fourth International Conference on Radiation and Applications in Various Fields of Research (RAD 2016)* was financially supported by:

- Central European Initiative (CEI)
- Ministry of Education, Science and Technological Development of the Republic of Serbia

**ISBN: 978-86-6125-160-3**

CIP - Каталогизacija y yублиkaciji -  
HapodHa библiотека Србије, Београд

539.16(048)

INTERNATIONAL Conference on Radiation and Applications  
in Various Fields of Research (4th ; 2016 ; Niš)  
Book of Abstracts / Fourth International Conference on Radiation and  
Applications in Various Fields of Research, RAD 4, May 23-27, 2016, Niš,  
Serbia ; [editor Goran Ristić]. - Niš : University, Faculty of Electronic  
Engineering, 2016 (Niš : Sven). - [XL], 510 str. ; 25 cm

Tiraž 50. - Bibliografija uz svaki rad.

ISBN 978-86-6125-160-3

a) Јонизујуће зрачење - Дозиметрија - Апстракти

COBISS.SR-ID 223620620

# CONTENTS

## A INVITED TALKS

Luisa Torsi	<b>ORGANIC ELECTRONIC BIOSENSORS FOR LABEL-FREE FEMTOMOLAR PROTEIN DETECTION</b>	2
Renata Longo	<b>MEDICAL IMAGING WITH SYNCHROTRON RADIATION</b>	3

## B KEYNOTE TALKS

Jasna Mihailovic	<b>FDG PET/CT PHYSICAL ASPECTS AND CLINICAL APPLICATIONS IN MEDICINE</b>	5
------------------	--	---

## 01 BIOCHEMISTRY

Vesna Zupunski, Vesna Spasic Jokic, Mirjana Vasic, Aleksandra Savic, Zoran Mitrovic, Ivan Zupunski	<b>ESTIMATION OF UNCERTAINTY OF TRYPSIN INHIBITOR ACTIVITY MEASUREMENT IN LEGUME CROPS</b>	7
Yordanka Gluhcheva, Juliana Ivanova, Ivelin Vladov, Kalina Kamenova	<b>SUBACUTE CADMIUM INTOXICATION AND SUBSEQUENT DETOXIFICATION WITH CHELATING AGENTS / A HEMATOLOGICAL STUDY</b>	8
Yordanka Gluhcheva, Ekaterina Pavlova, Ivelin Vladov	<b>CHRONIC EXPOSURE TO COBALT CHLORIDE AND MURINE ERYTHROCYTES / AN <i>IN VIVO</i> STUDY</b>	9
Blerina Resulaj, Rigerta Veseli, Ariol Rama	<b>DIFFERENCES IN ACCURACY BETWEEN LABORATORY BIOCHEMICAL TESTS AND THE EXTRALABORATORY ONES</b>	10
Anna A. Oleshkevich	<b>ENZYME ACTIVITY AND CELLULAR FUNCTIONS MODIFIED BY ULTRASOUND</b>	11

## 02 BIOINFORMATICS

Monika Simjanoska, Ana Madevska Bogdanova	<b>COLORECTAL CANCER THROUGH THE PRISM OF SIGNALS</b>	13
--	---	----

## 03 BIOMATERIALS

Polina Kachesova, Irina Goroshinskaya, Oleg Polozhentsev, Vladimir Borodulin, Oleg Losev	<b>THE EFFECT OF ZINC OXIDE NANOPARTICLES ON THE GROWTH OF RAT LYMPHOSARCOMA</b>	15
---	--	----

Gabriela Ciobanu, Octavian Ciobanu	<b>RADIO-OPAQUE MATERIALS BASED ON HYDROXYAPATITE AND BISMUTH</b>	16
Roxana Cristina Popescu, Andrei I. Apostol, Mihai Straticiu, Ecaterina Andronescu, Alexandru Mihai Grumezescu, Ileana Petcu, Diana Savu	<b>LOW DOSE RADIOTHERAPY IMPROVEMENT USING FUNCTIONALIZED MAGNETITE NANOPARTICLES</b>	17
H. Saito	<b>GELATION OF DNA AND BOVINE SERUM ALBUMIN (DNA-BSA GEL) BY GAMMA IRRADIATION AS BIO-ABSORBENT FOR ACRIDINE ORANGE</b>	18
Kaltrina Jusufi, Avni Berisha, Jeton Halili, Vjollca Palloshi, Valbonë Mehmeti, Lauresha Këpuska, Adelina Halili, Bardha Korça	<b>POTENTIAL APPLICATION OF APPLE PEELS AS BIOSORBENTS IN THE REMOVAL OF ORGANIC MOLECULES FROM WASTE WATER</b>	19
Kaltrina Jusufi, Jeton Halili, Avni Berisha, Mirlinda Alija, Valbonë Mehmeti, Lauresha Këpuska, Adelina Halili, Bardha Korça	<b>REMOVAL OF DYES FROM WASTEWATER USING PLANT-BASED BIOSORBENT DERIVATE FROM POTATO PEELS</b>	20
Kaltrina Jusufi, Jeton Halili, Avni Berisha, Adelina Halili, Valbonë Mehmeti, Bardha Korça	<b>DETERMINATION OF HEAVY METALS IN NUMEROUS RIVERS IN KOSOVO DURING A ONE-YEAR PERIOD</b>	21
Vera Alexandra Spirescu, Alexandru Mihai Grumezescu, Ecaterina Andronescu	<b>NANOSTRUCTURES BASED ON ZNO AND PHYTOCHEMICAL SUBSTANCES WITH COSMETIC APPLICATIONS</b>	22
Mioljub Nestic, Marica Popovic, Mihailo Rabasovic, Dejan Milicevic, Edin Suljovrujic, Dragan Markushev, Slobodanka Galovic	<b>PHOTOACOUSTIC CHARACTERIZATION OF THIN POLYLACTIDE SAMPLES OF DIFFERENT CRYSTALLINITY</b>	23
Jovanka Gasic, Radomir Barac, Jelena Popovic, Aleksandar Smiljkovic, Aleksandar Mitic, Marija Nikolic	<b>THE EFFECT OF EXTREME TEMPERATURES ON MICRO AND NANO HYBRID DENTAL COMPOSITES: AN EXPERIMENTAL FORENSIC STUDY</b>	24
Jeton Halili, Avni Berisha, Adelina Halili, Valbonë Mehmeti, Kaltrina Jusufi, Taulant Demelezi	<b>DIRECT (IN SITU) ELECTROCHEMICAL DETERMINATION OF SUPERCRITICAL CO<sub>2</sub> EXTRACTED ASCORBIC ACID FROM AQUEOUS SOLUTIONS ONTO PT ELECTRODES</b>	25

## 04 BIOMEDICAL ENGINEERING

Slavica Gajić, Saša Ćirković, Jasna Ristić-Djurović, Andjelija Ilić, Drago Djordjević, Vesna Špasić-Jokić	<b>EXPOSURE SYSTEM WITH HOMOGENEOUS STATIC AND ELF MAGNETIC FIELDS IN EXPERIMENTAL VOLUME</b>	27
Ljiljana Korugic-Karasz, Murat Tonga, Patrick Taylor, Eugene Wilusz, Paul Lahti, Frank Karasz	<b>THE THERMOELECTRIC ENERGY HARVESTING SYSTEMS IODINE-DOPED MEH-PPV WITH CARBON NANOTUBES</b>	28
Octavian Ciobanu, Gabriela Ciobanu	<b>AN APPLICATION OF KINECT BASED 3D SCANNING IN BIOMEDICAL ENGINEERING</b>	29

## 05 BIOMEDICINE

Zorica Becker-Kojic, Annie Schott, Ivan Zipancic, Vicente Hrabaza, Vicente Herranz Perez, Jose Maria Garcia Verdugo	<b>NEURONAL DIFFERENTIATION OF ACA-GENERATED PLURIPOTENT STEM CELLS AND THEIR POTENTIAL APPLICATION IN CELL REPLACEMENT THERAPY</b>	31
Amina Selimović, Selma Milišić, Ermina Mujičić	<b>ANALYSIS OF CYSTIC FIBROSIS IN FEDERATION OF BOSNIA AND HERZEGOVINA</b>	32
Mirjana Čolović, Vesna Vasić, Ulrich Kortz, Danijela Krstić	<b>THE INFLUENCE OF SYNTHESIZED POLYOXOMETALATES ON <math>Na^+/K^+</math>-ATPASE ACTIVITY</b>	33
Mirjana Čolović, Vesna Vasić, Ulrich Kortz, Danijela Krstić	<b>INTERACTION OF SOME POLYOXOTUNSTATES WITH ACETYLCHOLINESTERASE</b>	34
Ivan Pavlović, Ana Todorović, Vesna Stojiljković, Ljubica Gavrilović, Nataša Popović, Snežana B. Pajović, Snežana Pejić	<b>THE ANTIOXIDANT CAPACITY OF THE KIDNEY TISSUE IN PATIENTS WITH RENAL CELL CARCINOMA</b>	35
Tanja Dzopalic, Dragana Zmijanjac, Adil Ehmedah, Boris Djindjic, Dejan Krstic, Marija Dakovic - Bjelakovic, Biljana Bozic - Nedeljkovic	<b>EFFECT OF SILICON DIOXIDE-ENRICHED WATER DURING CHRONIC INGESTION OF ALUMINUM ON FUNCTIONAL CHARACTERISTICS OF PERITONEAL MACROPHAGES</b>	36
Tanja Novaković, Zana Dolićanin, Goran Babić, Nataša Đorđević	<b>A CORRELATION BETWEEN HEMATOLOGICAL CHANGES AND FETAL CELLS MICRONUCLEI IN PREGNANT WOMEN WITH HYPOTHYROIDISM</b>	37
Goran Babić, Snežana Marković, Zana Dolićanin, Nataša Đorđević, Jelena Milošević	<b>ESTRADIOL IMPROVES MEAN ARTERIAL PRESSURE THROUGH REDUCTIONS OF OXIDATIVE STRESS IN WOMEN WITH PREECLAMPSIA</b>	38
Slavica Shubeska Stratrova, Goran Petrovski, Snezana Markovik Temelkova	<b>DUAL-ENERGY X-RAY ABSORPTIOMETRY DETERMINED BODY MASS DENSITY AND ITS RELATIONSHIP TO BONE TURNOVER MARKERS</b>	39
Slavica Shubeska Stratrova, Goran Petrovski, Snezana Markovik Temelkova	<b>RELATIONSHIP BETWEEN CENTRAL OBESITY INDEX AND ITS ESTIMATED VALUES IN CUSHING'S SYNDROME</b>	40
Eugeniya Kuzmina, Elena Kovalenco, Oleg Vatin, Tatiana Mushkarina, Vyacheslav Pavlov	<b>THE TUMOR ASSOCIATED WITH THE STRESS-INDUCED MOLECULE MICA IN THE BLOOD CAN BLOCK THE ACTIVITY OF NK CELLS IN CANCER</b>	41
Tetiana Katrii, Olexiy Savchuk, Tetiana Vovk	<b>IMMUNOGLOBULIN CLASS G FROM BLOOD PLASMA OF STROKE PATIENTS IN ACUTE PHASE AND THE SAME PATIENTS ONE YEAR LATER AS EFFECTORS OF THE HAEMOSTASIS KEY FACTORS</b>	42
Eugeniya Kuzmina, Svetlana Zatsarenko, Tatiana Mushkarina	<b>COMBINED IMMUNITY INDICATORS FOR DIFFERENTIAL DIAGNOSIS OF HODGKIN'S LYMPHOMA REMISSION AND RELAPSE</b>	43

Eugeniya Kuzmina,  
Tatiana Mushkarina,  
Tatiana Konstantinova,  
Ludmila Krikunova

**THE ACTIVATION STATUS OF LYMPHOCYTES'  
SUBPOPULATIONS, APOPTOSIS AND THE LEVEL  
OF CIRCULATING REGULATORY T-CELLS IN THE  
DEVELOPMENT OF REPRODUCTIVE SYSTEM DISEASES  
IN WOMEN LIVING IN RADIOACTIVELY CONTAMINATED  
TERRITORIES FOLLOWING THE CHERNOBYL ACCIDENT**

44

## **06 BIOPHARMACEUTICALS AND PHARMACOLOGY**

Hleb Harbatsevich,  
Natalia Loginova,  
Tatsiana Koval'chuk,  
Yaroslav Faletrov,  
Srećko Trifunović,  
Marko Živanović,  
Snezana Marković

**REDOX-ACTIVE COPPER(II) COMPLEXES  
WITH 1,2-DIHYDROXYBENZENE DERIVATIVES**

46

Alexander Stankov,  
Svetla Gateva,  
Gabriele Jovtchev,  
Fridrich Gregan

**THE INVESTIGATION OF THE ANTIGENOTOXIC POTENTIAL  
OF PAPAVER RHOEAS L. AND SALVIA OFFICINALIS L.  
EXTRACTS AGAINST AN OXIDATIVE STRESS INDUCER**

47

Ilma Robo,  
Saimir Heta

**THE SIDE EFFECTS OF A GROUP OF ANTIBIOTICS THAT ARE  
USED THE MOST IN PERIODONTAL TREATMENTS**

48

Kalina Andreevska,  
Daniela Grekova,  
Stanislav Gueorguiev,  
Vasil Madjarov,  
Radiana Kiskinova,  
Elina Petkova

**THE PENETRATION OF TIOTROPIUM BROMIDE ON THE  
BULGARIAN COPD MARKET**

49

Elina Petkova,  
Valentina Petkova,  
Guenka Petrova,  
Stanislav Gueorguiev

**ECONOMIC ANALYSIS OF CHILDREN WITH TYPE 1 DIABETES  
ON CONTINUOUS SUBCUTANEOUS INSULIN INFUSION**

50

## **07 BIOPHYSICS**

Silvio R. De Luka, Andjelija Ž. Ilić,  
Saša Ćirković, Drago M.  
Djordjević,  
Jasna L. Ristić-Djurović,  
Alexander M. Trbovich

**STATIC MAGNETIC FIELD EFFECTS ON BIOCHEMICAL  
REACTIONS INVOLVING REACTIVE OXYGEN SPECIES**

52

Ana Setrajcic-Tomić,  
Ljubisa Dzambas,  
Jovan Setrajcic

**OPTICAL CORE-SHELL MODEL FOR NANO-DELIVERY  
APPLICATIONS**

53

Mikio Kato,  
Yuta Okubo

**THE EFFECT OF GAMMA-RAY IRRADIATION  
ON THE MOTILITY AND CHEMOTAXIS OF *ESCHERICHIA COLI***

54

Slavica Brkić,  
Mirjana Pinjuh

**QUANTUM DOTS AS BIOLOGICAL MARKERS**

55

Slobodan Todosijević, Zlatan Šoškić, Slobodanka Galović	<b>MEASUREMENT OF OPTICAL AND THERMAL PROPERTIES OF BIOLOGICAL TISSUES AND ANALYSIS OF TRANSPORT PROCESSES IN THEM</b>	56
Dora Krezhova, Svetla Maneva, Nikolay Petrov, Antony Stoev, Irina Moszkova	<b>REMOTE SENSING OF THE INFLUENCE OF ENVIRONMENTAL CHANGES ON PLANT BIOPHYSICAL VARIABLES</b>	57
Jasna Vujin, Djordje Jovanovic, Radmila Panajotovic	<b>PHYSICO-CHEMICAL CHARACTERIZATION OF LIPID-2D-MATERIALS SELF-ASSEMBLY FOR BIOSENSORS</b>	58
Spomenko Mihajlovic, Milena Cukavac, Rudi Čop, Vlado Antonic	<b>THE SOLAR AND MAGNETIC WEATHER - GEOEFFECTIVE IMPACTS</b>	59
Anna A. Oleshkevich	<b>GROWING, BIOCHEMICAL AND EMISSION PROCESS INTENSIFICATION WITH MODULATED ULTRASOUND</b>	60
Jin Kyu Kim, Jin-Hong Kim, Vladislav G. Petin	<b>BIOLOGICAL ACTIONS OF IONIZING RADIATION COMBINED WITH ANOTHER FACTOR: NUMERICAL APPROACH</b>	61
Laura Baliulytė, Jelena Tamulienė	<b>THEORETICAL STUDY OF THREONINE MOLECULE FRAGMENTATION BY LOW ENERGY ELECTRONS</b>	62

## 08 BIOTECHNOLOGY

Natalia Kamanina	<b>REFRACTIVE PROPERTIES OF BIO- AND NANO-STRUCTURED MATERIALS AS INDICATORS OF THE MODEL MATRIX MACRO PARAMETER MODIFICATION</b>	64
Natalia Poyedinok, Oksana Mykchaylova, Anatoly Negriyko	<b>LOW-INTENSITY LASER RADIATION IN BIOTECHNOLOGY CULTIVATION OF CULINARY-MEDICINAL MUSHROOMS</b>	65
Tatyana Tugay, Natalia Poyedinok, Andrei Tugay, Oksana Mykchaylova, Anatoly Negriyko	<b>PROSPECTS FOR USING LOW-INTENSITY IONIZING AND LASER RADIATION TO ENHANCE THE MELANIN BIOSYNTHESIS WITH FUNGI</b>	66
Blagica Cekova, Viktorija Bezhovska, Ismet Limani, Filip Jovanovski	<b>MICROBIOLOGICAL COMPOSITION OF DEHYDRATED AGRICULTURAL PRODUCTS FROM THE REPUBLIC OF MACEDONIA</b>	67
Blagica Cekova, Filip Jovanovski, Viktorija Bezhovska	<b>THE ROLE OF MICROORGANISMS IN THE PRESERVATION OF SOME GARDENING PRODUCTS</b>	68
Anna Grunina, Ludmila Tsvetkova, Natalia Pronina, Alexander Recoubratsky	<b>INVESTIGATIONS ON DISPERMIC ANDROGENESIS IN STURGEON FISHES WITH THE USE OF CRYOPRESERVED SPERM: EXPERIMENT ON STERLET AND BELUGA STURGEONS</b>	69
Petar Petrov, Vesna Markoska, Bojan Mitrovski	<b>THE INFLUENCE OF FOLIAR FERTILIZING ON SOME CHEMICAL PARAMETERS OF THE BROCCOLI (BRASSICA OLERACEA L. VAR. BOTRYTIS)</b>	70

Sanja Petrović, Sasa Savić, Jelena Zvezdanović, Dragan Cvetković, Dejan Marković	<b>A LIPID MICROENVIRONMENT IMPACT ON LIPOSOMES WITH INCORPORATED PIGMENTS</b>	71
Liubov Zelena, Igor Gretskey, Tatyana Kachur	<b>ESTIMATION OF YEAST FLOCCULATION UNDER ULTRAHIGH FREQUENCY ELECTROMAGNETIC RADIATION</b>	72
Sasa Savić, Sanja Petrović, Zivomir Petronijević	<b>IMMOBILIZATION OF HORSE RADISH PEROXIDASE ON HYDROPHOBIC CARRIERS</b>	73
Valentyna Katsan, Larysa Yurkevych, Anatoly Potopalsky	<b>ADAPTATION AND ITS CONSTITUENTS MAY INDUCE THE CHANGES OF SOME ADAPTIVE FUNCTIONS OF PLANTS PERSISTING IN THE NEXT GENERATIONS AFTER THE TREATMENT</b>	74

## 09 CANCER RESEARCH

Sergey Milyukov, Georgy Panshin, Natalia Kharchenko, Sergey Golub, Gadzhimurad Zapirov, Mikhail Kunda, Timur Izmailov	<b>THE IMPACT OF PREDICTORS ON DISEASE-FREE SURVIVAL IN PATIENTS WITH SUPRATENTORIAL INFILTRATIVE LOW GRADE GLIOMAS (GRADE II)</b>	76
Elham Raeisi, Seyed Mahmoud Reza Aghamiri, Negar Rahmatpour, Azin Bandi, Sedigheh Amini Kafi-Abadi, Lluís M. Mir	<b>THE ANTITUMOR EFFICIENCY OF REPEATED ELECTROCHEMOTHERAPY WITH CISPLATIN ON A BREAST CANCER TUMOR MODEL IN MICE</b>	77
Emilia Domina, Elena Pylypchuk	<b>DEVELOPMENT OF APPROACHES FOR THE PRIMARY PREVENTION OF RADIOGENIC CANCER</b>	78
Ludmila Grzybowska-Szatkowska, Brygida Ślaska, Jolanta Rzymowska	<b>MISSENSE MUTATIONS IN MTDNA IN BREAST CANCER</b>	79
Albert Berman, Galina Morozevich, Nadezda Kozlova, Nina Gevorkian	<b>IMPLICATION OF AKT KINASE SIGNALING IN INTEGRIN ALPHA-2/BETA-1 DEPENDENT ANOIKIS RESISTANCE IN HUMAN MELANOMA CELLS</b>	80
Galina Morozevich, Nadezda Kozlova, Natalia Ushakova, Nina Gevorkian, Olga Susova, Albert Berman	<b>IMPLICATION OF ALPHA-2/BETA-1 AND ALPHA-5/BETA-1 INTEGRINS IN DRUG RESISTANCE OF HUMAN BREAST CARCINOMA CELLS</b>	81
Eugeniya Kuzmina, Tatiana Mushkarina, Tatiana Konstantinova	<b>MINIMAL RESIDUAL DISEASE CAN PREDICT RESPONSE TO TREATMENT OF LYMPHOPROLIFERATIVE DISORDERS</b>	82
Eugeniya Kuzmina, Oleg Vatin, Mikhail Kaplan, Nina Tkachenko	<b>SYSTEMIC EFFECT OF PHOTODYNAMIC THERAPY FOR CANCER ON CYTOKINE LEVEL</b>	83

## 10 ENVIRONMENTAL CHEMISTRY

Irina Shtangeeva, Maria Ángela de B. C. Menezes	<b>IS BROMINE A TOXIC TRACE ELEMENT OR IS IT AN ESSENTIAL NUTRIENT?</b>	85
--	---	----



Natalia Masalitina, Alexander Ogurtsov	<b>THE INVESTIGATION OF THE INFLUENCE OF MN-BI-CU-CE-O CATALYSTS ON THE ENVIRONMENT-FRIENDLY GREEN PROCESS OF LOW-TEMPERATURE AMMONIA OXIDATION TO NITROUS OXIDE</b>	86
Lauresha Këpuska, Valbonë Mehmeti, Mentor Ismaili, Avni Berisha, Veprim Thaçi, Kaltrina Jusufi	<b>PHYSICOCHEMICAL CHARACTERIZATION OF THE GOSHICA'S CLAY AND ITS USE FOR NITROGEN ADSORPTION</b>	87
Lauresha Këpuska, Valbonë Mehmeti, Mentor Ismaili, Avni Berisha, Kaltrina Jusufi, Veprim Thaçi	<b>DECOLOURIZATION OF OIL BY THE GOSHICA'S CLAY: A STUDY OF ADSORPTION ISOTHERMS AND BLEACHING KINETICS</b>	88
Julijana Velevska, Nace Stojanov, Margareta Pecovska-Gjorgjevich, Metodija Najdoski	<b>VISIBLE LIGHT MODULATION USING CHEMICALLY DEPOSITED ELECTROCHROMIC THIN FILMS</b>	89
Avni Berisha, Gentiana Alidema, Mimoza Haxhimustafa, Fikreta Ejupi, Kaltrina Jusufi, Valbonë Mehmeti, Jeton Halili, Veprim Thaçi, Adelina Halili, Lauresha Këpuska	<b>A COMPARATIVE STUDY OF THE ORGANIC MOLECULE REMOVAL PERFORMANCE OF THE BIOSORBENTS DERIVED FROM AGRICULTURAL PEELS</b>	90
Avni Berisha, Fexha Salihu, Vera Morina, Jeton Halili, Valbonë Mehmeti, Kaltrina Jusufi, Adelina Halili	<b>THE REMOVAL OF ORGANOCHLORINE PESTICIDES FROM THE ORGANIC OR AQUEOUS MODEL SYSTEM THROUGH THE ADSORPTION ONTO COVALENTLY-MODIFIED CARBON POWDER</b>	91
Laura Binxhija, Arjana Ylli	<b>MEDICAL PLANTS IN DIFFERENT SOILS WITH HEAVY METALS</b>	92
Ekaterina Klementjeva, Svetlana Ovsiannikova	<b>ASSESSMENT OF NATURAL RADIONUCLIDES IN BELARUSIAN DRINKING WATER SOURCES</b>	93
Gye-Nam Kim, Seung-Soo Kim, Jong-Won Choi	<b>THE REMOVAL OF URANIUM FROM THE CONTAMINATED SOIL BY ELECTROKINETIC TECHNOLOGY</b>	94
Lydia Bondareva, Andrey Kuzmin	<b>THE INFLUENCE OF OIL ON THE RYE GRAIN CULTURE OF <i>S. CEREALE (L)</i></b>	95
Jeton Halili, Altin Mele, Tahir Arbnesi, Adelina Halili, Valbonë Mehmeti, Kaltrina Jusufi, Avni Berisha	<b>THE EVALUATION OF DITHIZONE PERFORMANCE AS A COMPLEXING REAGENT FOR THE SUPERCRITICAL CO<sub>2</sub> EXTRACTION OF HEAVY METALS FROM AQUEOUS SOLUTIONS</b>	96
Valbonë Mehmeti, Kurt Kalcher, Fetah Podvorica, Avni Berisha	<b>CORROSION INHIBITION OF MILD STEEL IN AQUEOUS SULFURIC ACID SOLUTION USING HETEROCYCLIC MERCAPTO COMPOUNDS</b>	97
Marija Mihajlović, Jelena Petrović, Mirjana Stojanović, Milan Kragović, Jelena Milojković, Marija Petrović, Tatjana Šošarić	<b>EFFECT OF KOH ACTIVATION ON HYDROCHARS: FT-IR SPECTROSCOPY ANALYSIS</b>	98
Sanja Bijelovic, Natasa Dragic, Emil Zivadinovic, Jovana Nikolov, Natasa Todorovic	<b>GROSS ALPHA AND BETA PARTICLE ACTIVITIES IN PUBLIC WELLS IN THE TERRITORY OF THE AP OF VOJVODINA</b>	99

Valbonë Mehmeti, Kurt Kalcher, Avni Berisha, Fetah Podvorica	<b>EXPERIMENTAL AND THEORETICAL (DFT/B3LYP) STUDIES ON CORROSION BEHAVIOR OF SOME MONO AND POLYHYDROXY AROMATIC DERIVATIVES ON COPPER</b>	100
Valbonë Mehmeti, Kurt Kalcher, Avni Berisha, Fetah Podvorica	<b>THE CORROSION INHIBITION PERFORMANCE OF THE COVALENTLY BONDED POLY(BROMOPHENYLENE) LAYERS ONTO MILD STEEL</b>	101
Lauresha Këpuska, Valbonë Mehmeti, Mentor Ismaili, Avni Berisha, Veprim Thaçi, Kaltrina Jusufi	<b>THE EVALUATION OF THE PORE SIZE AND PORE DISTRIBUTION FOR THE GOSHICA (KOSOVO) CLAY MODIFIED WITH QUATERNARY AMMONIUM IONS</b>	102
Jeton Halili, Avni Berisha, Adelina Halili, Valbonë Mehmeti, Kaltrina Jusufi	<b>COLOR REMOVAL FROM AQUEOUS SOLUTIONS CONTAINING DISSOLVED ORGANIC MOLECULES USING THE MATERIAL DERIVED FROM CUCUMBER PEELS AS A LOW COST BIO-SORBENT</b>	103
Liri Miho, Ardian Maçi, Blerina Xhaferaj	<b>THE PRESENCE OF HEAVY METALS IN FISH CANS IN ALBANIA</b>	104
Liri Miho, Blerina Xhaferaj	<b>THE ORGANOCHLORINE PESTICIDES IN POTATOES</b>	105
Edmond Lukaj, Floran Vila, Florian Mandija	<b>THE IMPACT OF ATMOSPHERIC IONS ON AEROSOL SIZE DISTRIBUTION</b>	106

## 11 MEDICAL DEVICES

Dušanka Mandić, Dragan Cvetković	<b>MADU INNOVATIVE MEDICAL DEVICE</b>	108
Olga Bockeria, Mikhail Bazhin, Kirill Potlovskiy, Anna Satyukova, Tatyana Le, Vladimir Shvartz, Leo Bockeria	<b>MODELING OF HEART KINEMATICS IN EXPERIMENTS ON THE CONVERSION OF HEARTBEATS INTO ELECTRICAL ENERGY TO POWER EPICARDIAL PACEMAKERS</b>	109

## 12 MEDICAL IMAGING

Vladimir Shchedrenok, Olga Moguchaya, Tatjana Zakhmatova, Ilja Zuev, Konstantin Sebelev	<b>THE TRANSFORMATION OF THE BRACHIOCEPHALIC ARTERY TORTUOSITY AT THE VERTICALIZATION OF A PATIENT</b>	111
Maurizio Sessa, Claudia Rossi, Annamaria Mascolo, Enrico Grassi, Sonia Fiorentino, Cristina Scavone, Alfonso Reginelli, Antonio Rotondo, Liberata Sportiello	<b>SUSPECTED ADVERSE REACTIONS TO CONTRAST MEDIA IN THE CAMPANIA REGION (ITALY): RESULTS FROM 14 YEARS OF POST-MARKETING SURVEILLANCE</b>	112
Jelena Popić Ramač, Verica Garay Vrhovac	<b>THE DYNAMIC MR IMAGING OF MEDIASTINAL TUMORS</b>	113

Katsiaryna Halavataya, Tatyana Ginko, Ludmila Kalatskaya	<b>INTERACTIVE COLOR IMAGE PROCESSING IN PHOTODYNAMIC THERAPY</b>	114
Dragica Obad Kovačević, Jelena Popić Ramač, Ika Kardum-Skelin, Vinko Vidjak	<b>CORRELATION BETWEEN SONOGRAPHIC FEATURES AND CYTOLOGY FINDINGS IN THYROID GLAND NODULES</b>	115
Ahmet Murat Şenişık, Serap Tekşöz, Çiğdem İçhedef, Ayfer Yurt Kılçar, Eser Uçar, Kadir Arı, Yasemin Parlak, Elvan Sayıt Bilgin	<b>COMPARISON OF THE BIOLOGICAL BEHAVIOR OF RADIOLABELED <math>^{18}\text{F}</math>FDG-GLYCYLGLYCINE AND <math>^{99\text{m}}\text{Tc}(\text{CO})_3\text{-GLYCYLGLYCINE}</math></b>	116
Marija Dakovic Bjelakovic, Dragan Stojanov, Jelena Ignjatovic, Jelena Popovic, Tanja Dzopalic	<b>EVALUATION OF VARIABILITY OF SUPRAORBITAL NOTCHES AND FORAMINA USING THREE-DIMENSIONAL COMPUTER TOMOGRAPHY VOLUME RENDERING</b>	117
Irena Dimitrijevic, Dragan Mancic, Mirjana Kocic, Milica Lazovic	<b>THE ROLE OF THE INFRARED THERMOGRAPHY IN DIAGNOSING THE UNILATERAL COMPLEX REGIONAL PAIN SYNDROME TYPE I</b>	118
Vojislav Antic, Julie Haglund	<b>NEED FOR REVISING PATIENT DOSE PROTOCOLS IN PET MEDICAL IMAGING BASED ON NOVEL TECHNOLOGY IMPROVEMENTS</b>	119
Vojislav Antic, Julie Haglund	<b>CONNECTIONS BETWEEN NOISE EQUIVALENT COUNT RATE AND IMAGE NOISE IN PET MEDICAL IMAGING</b>	120
Jelena Popović, Marija Daković Bjelaković, Jovanka Gašić, Milan Spasić, Marija Nikolić, Radomir Barac	<b>THE MENTAL FORAMEN POSITION IN RELATION TO THE RADIOGRAPHIC APEX OF THE MANDIBULAR SECOND PREMOLAR</b>	121
Deniz Bulja, Dragan Stojanov, Jelena Ignjatovic, Marija Dakovic Bjelakovic, Jelena Popovic	<b>THE INCIDENCE OF DEHISCENCE OF THE TYMPANIC SEGMENT OF THE FACIAL NERVE CANAL ESTIMATED COMPUTED TOMOGRAPHY</b>	122
Nicoleta Andreea Pasare (Tudor), Radu Mutihac	<b>ANALYSIS OF SUSCEPTIBILITY-WEIGHTED IMAGES USING SUPPORT VECTOR MACHINE IN PARKINSON'S DISEASE</b>	123
Diana Ospanova, Zhanna Abdrakhmanova, Marzhan Kanafina	<b>ANALYSIS OF RESULTS OF TREPHINE BIOPSY UNDER VISUAL CONTROL OF BREAST LUMPS PROVIDED AT ASTANA ONCOLOGY CENTER</b>	124
Zhanna Abdrakhmanova	<b>ENDOPROSTHESIS REPLACEMENT AND X-RAY DIAGNOSTICS OF KNEE JOINTS AMONG PATIENTS WITH HEMOPHILIC ARTHROPATHY</b>	125
Huseyin Ozan Tekin, Umit Kara, Ozlem Ozturk, Tugba Manici, Elif Ebru Altunsoy, Baris Cavli	<b>COMPARISON STUDY OF CLINICAL MEASUREMENTS AND MONTE CARLO METHOD ON RADIATION DOSE RATE CHANGES BY DISTANCE IN COMPUTERIZED TOMOGRAPHY (CT) FACILITY</b>	126

Huseyin Ozan Tekin, Umit Kara	<b>ANALYSIS OF FILTERING MATERIAL AND ITS EFFECT ON X-RAY FEATURES BY USING MONTE CARLO METHOD FOR MEDICAL IMAGING APPLICATIONS</b>	127
Huseyin Ozan Tekin, Umit Kara, Tugba Manici, Ozlem Ozturk, Elif Ebru Altunsoy	<b>AN INVESTIGATION ON PHOTON BEAM SPECTRA BY CONSIDERING ANGULAR VARIATIONS AND DEPTH DOSE CHARACTERISTIC FOR MAMMOGRAPHY BY USING MCNP-X</b>	128
Umit Kara, Huseyin Ozan Tekin	<b>ESTIMATED RADIATION RISKS, CLINICAL FACTORS AND PATIENT DOSE IN MAMMOGRAPHY</b>	129
Marija Glisic, Erich Sorantin	<b>LOCATION OF THYROID GLAND AND CHEST X-RAY IMAGING IN CHILDREN</b>	130

### 13 MEDICAL PHYSICS

Evgeniia Sukhikh, Leonid Sukhikh, Evgeniy Malikov, Peter Filatov	<b>EVALUATION OF MEASUREMENT DOSE UNCERTAINTY OF GAFCHROMIC EBT3 BECAUSE OF LOCAL INHOMOGENEITY</b>	132
Yong Nam Kim, Soo Kon Kim	<b>FEASIBILITY OF USING ARTIFICIAL NEURAL NETWORK ALGORITHM TO ESTIMATE DOSE DISTRIBUTION FOR RADIATION TREATMENT</b>	133
Evgeniia Sukhikh, Indira Khassenova, Leonid Sukhikh, Evgeniy Malikov	<b>INVESTIGATION OF DOSE BUILDUP REGION OF ELECTRON BEAM USING POLYMER FILMS AND IONIZATION CHAMBER</b>	134
Sergey Stepanov, Vsevolod Byakov, Yurii Perfiliev, Leonod Kulikov	<b>APPLICATION OF POSITRON ANNIHILATION AND EMISSION MÖSSBAUER SPECTROSCOPY FOR DETECTION OF CHEMICAL CARCINOGENS</b>	135
Julie Haglund	<b>SHIELDING REQUIREMENTS FOR PET/CT USING THE AAPM TASK REPORT 108</b>	136
Md Shakilur Rahman, Md. Abdus Sattar, Meher Nigar Sharmin, AKM Moinul Haque Meaze	<b>DOSIMETRY OF HIGH ENERGY PHOTON AND ELECTRON BEAMS FROM MEDICAL LINEAR ACCELERATOR: STUDY OF INTERNATIONAL PROTOCOLS WITH VARIOUS IONIZATION CHAMBERS</b>	137
Armin Duraković, Semir Fazlić, Amar Nuhan, Edib Avdić	<b>COMPARISON OF CTDI MEASUREMENTS IN STANDARD PMMA AND IN-HOUSE FABRICATED MDPE PHANTOM</b>	138
Roumen Georgiev, Ivet Payanova, Zdravka Spasova, Ljupcho Iliev, Stoyanka Georgieva, Roumen Lazarov	<b>CT AND MRI IMAGE FUSION TO IMPROVE TARGET POSITIONING FOR STEREOTACTIC RADIOSURGERY (SRS) TREATMENT PLANNING</b>	139
Nikola Jovancevic, Brankica Andjelic, Milomir Milakovic, Miodrag Krmar	<b>NEW APPLICATION OF UNFOLDING TECHNIQUE IN ESTIMATION OF ENERGY SPECTRA OF THERAPY PHOTON BEAMS</b>	140

Stefan Rafajlović, Gordan Nišević	<b>PROPOSAL OF TESTS THAT SHOULD BE CONDUCTED BEFORE THE TREATMENT, PERIODICALLY AND DURING RADIOACTIVE SOURCE REPLACEMENT, WITH THE AIM OF INTRODUCING QUALITY CONTROL AND QUALITY ASSURANCE IN BRACHYTHERAPY</b>	141
Firas Ghareeb, Sofia Silva, Joana Lencart, Fatima Borges, Joao Santos	<b>COMPARISON OF MEASURED AND CALCULATED OUT-OF-FIELD DOSES IN A PAEDIATRIC ANTHROPOMORPHIC PHANTOM / OUT OF THE BODY SCATTER CONTRIBUTION EVIDENCE</b>	142
Soumaya Boujamaa, Hilde Bosmans, Farida Bentayeb	<b>PRELIMINARY STUDY ON MAMMOGRAPHY QUALITY CONTROL IN MOROCCAN HOSPITALS</b>	143
Kristina Bliznakova	<b>DEVELOPMENT OF BREAST SOFTWARE PHANTOM DEDICATED FOR RESEARCH AND EDUCATIONAL PURPOSES</b>	144
Renata Longo, Renato Padovani, Luciano Bertocchi	<b>A MEDICAL PHYSICS TRAINING OPPORTUNITY FOR YOUNG PHYSICISTS IN ITALY</b>	145
Abdel-Hai Benali	<b>ENERGY DEPENDENCE OF GLASS DOSIMETER RPL GD-301 AND TLD LiF:Mg,Ti AND OSL AL<sub>2</sub>O<sub>3</sub>:C DOSIMETERS BY USING MONTE CARLO SIMULATIONS</b>	146
Meriem Fiak, Jamal Inchaouh	<b>STUDY OF DOSE DISTRIBUTIONS IN BIOLOGICAL TISSUES OF A PATIENT AND DOSIMETRIC CONTROL OF RADIATION THERAPY TREATMENTS</b>	147

## 14 MICROWAVE, LASER, RF AND UV RADIATIONS

Zorica Podrascanin, Zoran Mijatovic, Ana Firanj	<b>TRENDS OF UV INDEX MEASURED IN NOVI SAD FROM 2004 TO 2013</b>	149
Anibal Aguirre	<b>WIDE-BANDWIDTH MEASUREMENTS OF NON-IONIZING RADIATION: THEIR ERRORS VERSUS THE MOBILE PHONE SYSTEM OPERATING LEVEL</b>	150
Alexander Guridov, Elena Deshevaya, Sergei Shashkovsky, Dmitriy Zakharenko, Natalia Khamidullina, Natalia Novikova	<b>THE DEVELOPMENT OF PULSED UV UNITS AND REGIMES OF AIR AND SURFACE DECONTAMINATION IN A LANDING MODULE</b>	151
Sergei Voychuk, Elena Gromozova, Valentin Pidgorskiy	<b>YEAST CELL WALL POLYSACCHARIDE CONTENT UNDER ACTION OF RF EMF AND CHEMICAL STRESSES</b>	152
Dana Dabala, Victor Dabala, Didi Surcel, Emanoil Surducan, Vasile Surducan	<b>EXPERIMENTAL MODEL OF RISK ASSESSMENT AND MANAGEMENT IN OCCUPATIONAL EXPOSURE TO RADIOFREQUENCY/MICROWAVE RADIATION</b>	153

Nataša Dorđević, Jovan Vuković, Aleksandar Peulić, Andraš Štajn, Milica Paunović, Edin Dolićanin, Zana Dolićanin	<b>BEHAVIORAL EFFECTS OF LOW FREQUENCY ELECTROMAGNETIC FIELD MEDIATED BY NITRIC OXIDE IN RATS' HYPOTHALAMUS</b>	154
Avni Berisha, Blerina Baxhaku, Nardi Sheqerxhiu, Ahmet Hoxha, Nimet Orqusha, Jeton Halili, Valbonë Mehmeti, Kaltrina Jusufi, Adelina Halili	<b>THE EVALUATION OF THE SHORT TERM PHOTOSTABILITY OF THE ALPRAZOLAM DRUG</b>	155
Svetlana A. Komarova, Anna A. Oleshkevich	<b>THE USE OF UV-SPECTROPHOTOMETRY IN THE EXAMINATION OF ANIMAL HAIR</b>	156
Natalia Statsyuk, Khyal Thakur, Smetanina Tatiana, Maria Kuznetsova	<b>THE EFFECT OF THE PRE-PLANTING TREATMENT OF TUBERS WITH THE LOW-FREQUENCY PULSE ELECTRIC FIELD ON SOME BIOMETRIC PARAMETERS OF POTATO PLANTS</b>	157
Maria Kuznetsova, Natalia Statsyuk, Alexander Rogozhin, Alexey Filippov	<b>LOW-FREQUENCY PULSE ELECTRIC FIELD: A NEW GREEN TECHNOLOGY TO IMPROVE THE YIELD OF VEGETABLE CROPS</b>	158
Milesa Srećković, Slađana Pantelić, Srbislav Stanković, Suzana Polić, Aleksander Kovačević, Nenad Ivanović, Aleksandar Bugarinović, Stanko Ostojić, Željka Tomić	<b>ELION TECHNIQUES IN APPLICATION AND IN SCIENCE WITH ACCENT ON ECOLOGY AND CULTURAL HERITAGE</b>	159
Drago Jelovac, Melvil Sabani, Drago Djordjević, Mirjana Jovanovich, Branko Djurovich, Ivan Boricich, Novica Boricich, Milan Petrovich	<b>THE INFLUENCE OF MOBILE PHONES RADIATION ON THE OCCURRENCE AND DEVELOPMENT OF HEAD AND NECK TUMORS</b>	160
Michel Israel, Ivanka Topalova, Tsvetelina Shalamanova, Mihaela Ivanova, Victoria Zaryabova	<b>DATA OF EMF MEASUREMENTS IN URBAN AREAS WITH HIGH DENSITY OF SOURCES AND SUCH WITH "SENSITIVE PLACES AND BUILDINGS"</b>	161
Mihaela Ivanova, Tsvetelina Shalamanova, Michel Israel, Victoria Zaryabova, Hristina Petkova	<b>OCCUPATIONAL AND ENVIRONMENTAL EXPOSURE TO MAGNETIC FIELDS IN RESIDENTIAL BUILDINGS WITH BUILT-IN TRANSFORMERS</b>	162
Tsvetelina Shalamanova, Mihaela Ivanova, Rumiana Petrova, Ivanka Topalova, Petya Ivanova, Magdalena Dimitrova	<b>THE EMF EXPOSURE OF THE GENERAL PUBLIC AFTER THE DIGITALIZATION OF BROADCAST TECHNOLOGY</b>	163
Valeriy Zaporozhan, Andrey Ponomarenko	<b>THE ROLE OF MAGNETIC AND ELECTROMAGNETIC INTERACTIONS IN VIRUS INFECTIONS: IMPLICATIONS AND NEW OPTIONS FOR MEDICINE</b>	164

## 15 NEUTRON AND HEAVY ION RADIATIONS

George Ryazantsev, Maxim Khaskov	<b>NEUTRON MATTER AND ITS PLACE IN THE PERIODIC SYSTEM OF ELEMENTS</b>	166
-------------------------------------	--	-----

Alexander Shemyakov, Svetlana Zaichkina, Olga Rozanova, Svetlana Sorokina, Sergey Romanchenko, Helena Smirnova, Olga Vakhrusheva, Vladimir Pikalov	<b>STUDY OF BIOLOGICAL EFFECTS INDUCED BY ACCELERATED <math>^{12}\text{C}</math> IONS WITH ENERGY OF 450 MEV/N ON MICE <i>IN VIVO</i></b>	167
Pavel Chubunov, Vasily Anashin, Sergey Iakovlev	<b>ESTIMATION OF HEAVY IONS LET FOR SEE TESTING OF ELECTRONIC COMPONENTS USING ROSCOSMOS TEST FACILITIES</b>	168
Kiril Krezhov, Dariya Vladikova, Gergana Ivanova, Tanya Malakova, Tzvetana Nonova, Erzebet Svab, Ivaylo Genov, Margit Fabian	<b>BAC<sub>0.85</sub>Y<sub>0.15</sub>O<sub>3</sub>- BASED MATERIALS FOR SOLID OXIDE FUEL CELLS: NEUTRON DIFFRACTION STUDY</b>	169

## 16 NUCLEAR MEDICINE

Satoru Nakamura	<b>CASE STUDY OF IMPROVED IMAGING WITH DATSCAN AFTER DEEP BRAIN STIMULATION IN PARKINSON'S DISEASE</b>	171
Mariia Firsova, Nina Polyakova, Oksana Kashchenko	<b>INTERMITTENT USAGE OF ZOLENDRONIC ACID AND PAMIDRONATE BETWEEN RADIONUCLIDE THERAPY COURSES</b>	172
Yulia Lysak, Vladimir Klimanov, Boris Narkevich	<b>THE ASSESSMENT OF ABSORBED DOSE IN RADIONUCLIDE THERAPY</b>	173
Julie Haglund	<b>PREPARING FOR A CLINICAL DRIFT OF PET/CT, AN EXAMPLE FROM NORWAY</b>	174
Maryam Pourkaveh	<b>A COMPARATIVE SURVEY OF THE AWARENESS LEVEL OF WORKING DOCTORS AND MEDICAL STUDENTS IN THE HAMADAN PROVINCE CONCERNING THE MEDICAL RESPONSE AND PREPAREDNESS IN NUCLEAR ACCIDENTS</b>	175
Umit Kara, Huseyin Ozan Tekin, Mustafa Yıldız	<b>CLINICAL EXPERIENCES WITH TC-99M RENAL SCINTIGRAPHY</b>	176
Umit Kara, Huseyin Ozan Tekin, Mustafa Yıldız	<b>CARDIAC NUCLEAR MEDICINE PROCEDURES AND RADIATION EFFECTS</b>	177

## 17 RADIATION DETECTORS

Ercan Yilmaz, Senol Kaya, Ramazan Lok, Aliekber Aktag, Huseyin Karacali, Aleksandar Jaksic	<b>NEWLY-GENERATED NUCLEAR RADIATION SENSING FIELD EFFECT TRANSISTOR (NÜRFET) FOR IRRADIATION DETECTION</b>	179
Aysegul Kahraman, Ercan Yilmaz, Aliekber Aktag, Şenol Kaya	<b>A DETAILED STUDY OF THE RADIATION RESPONSE OF ER<sub>2</sub>O<sub>3</sub> MOS CAPACITOR UNDER ZERO GATE BIAS</b>	180

Mehmet Yüksel, Ziyafer Gizem Portakal, Tamer Dogan, Mustafa Topaksu	<b>LUMINESCENCE STUDY OF NEODYMIUM-DOPED CALCIUM SULFATE</b>	181
Mehmet Yüksel	<b>THERMOLUMINESCENCE PROPERTIES OF ANHYDROUS SODIUM SULFATE</b>	182
Toshiyuki Onodera, Keitaro Hitomi, Tadayoshi Shoji	<b>THALLIUM BROMIDE SEMICONDUCTOR CRYSTALS GROWN VIA VERTICAL TRAVELING MOLTEN ZONE METHOD FOR FABRICATING GAMMA-RAY DETECTORS</b>	183
Nursultan Japashov, Ahmet Saymbetov, Ramizulla Muminov, Sali Radzhapov, Yorqin Toshmurodov, Bauyrzhan Mukhametkali, Nursultan Sissenov, Nurzhigit Kuttybay, Aizhan Mansurova	<b>DEVELOPMENT OF SILICON STRIP DETECTORS OF NUCLEAR RADIATION WITH ORTHOGONAL FIELD</b>	184
Laura Basiricò, Andrea Ciavatti, Tobias Cramer, Piero Cosseddu, Annalisa Bonfiglio, Beatrice Fraboni	<b>FLEXIBLE ORGANIC X-RAY DETECTORS</b>	185
Miguel Angel Carvajal Rodriguez, Sofia Martinez Garcia, Damián Guirado Llorente, Antonio Martínez Olmos, Alberto J. Palma Lopez	<b>THERMAL COMPENSATION FOR DMOS TRANSISTORS USED AS REAL TIME DOSIMETERS IN ELECTRON BEAMS</b>	186
Mustafa Topaksu, Mehmet Yüksel, Tamer Dogan	<b>DETERMINATION OF NATURAL CALCIUM FLUORITE TRAP DEPTHS</b>	187
G. Georgiev, V. Kozhuharov, L. Tsankov	<b>PLASTIC SCINTILLATIONS RESEMBLING LED DRIVER</b>	188
G. Georgiev, V. Kozhuharov, L. Tsankov	<b>THE PADME TRACKING SYSTEM</b>	189
Gordana Medin	<b>THE NEW EMERGING TECHNOLOGIES AND MATERIALS: GRAPHENE BASED SENSORS</b>	190
Ercan Yilmaz, A. Kahraman, D. Yegen, Aleksandar Jaksic	<b>INVESTIGATION OF RADFET RESPONSE TO X-RAY AND ELECTRON BEAMS IN REFERENCE CONDITIONS</b>	191
J. Burger, V. Cindro, A. Gorišek, G. Kramberger, I. Mandić, M. Zavrtanik, M. Mikuž	<b>DEVELOPMENT OF IN-VIVO DIAMOND AND RADFET DOSIMETRY FOR BRACHYTHERAPY</b>	192
Sophie Mallows	<b>PREDICTING THE RADIATION LEVELS IN THE CMS EXPERIMENTAL CAVERN</b>	193
Aleksandar Jaksic, Nikola Vasovic, Srboljub Stankovic	<b>SENSITIVITY OF STANDARD AND STACKED RADFET DOSIMETERS</b>	194



## 18 RADIATION EFFECTS

Jinshun Bi	<b>THE BODY BIAS EFFECTS ON THE SINGLE-EVENT-TRANSIENT OF SILICON-ON-INSULATOR CMOS TECHNOLOGY</b>	196
Alexander Ogurtsov, Olga Bliznjuk	<b>KINETIC STUDY OF SYNCHROTRON RADIATION INDUCED RARE-GAS CRYSTALS MODIFICATION BY EXCITON SELF-TRAPPING</b>	197
José Pinela, Amilcar L. Antonio, Lillian Barros, Sandra Cabo Verde, Ana Maria Carvalho, M. Beatriz P.P. Oliveira, Isabel C.F.R. Ferreira	<b>FROM THE FIELD TO THE TABLE: IONIZING RADIATION AS A FEASIBLE POSTHARVEST TREATMENT FOR FRESH AND DRIED PLANT FOODS</b>	198
Eliana Pereira, Andreia I. Pimenta, Ricardo C. Calhelha, Amilcar L. Antonio, Sandra Cabo Verde, Lillian Barros, Celestino Santos-Buelga, Isabel C.F.R. Ferreira	<b>THE IMPACT OF GAMMA IRRADIATION ON THE CYTOTOXIC PROPERTIES AND PHENOLIC COMPOSITION OF <i>THYMUS VULGARIS</i>L. AND <i>MENTA X PIPERITA</i> L.</b>	199
Elena Savchenko, Ivan Khyzhniy, Sergey Uyutnov, Mikhail Bludov, Andrei Barabashov, Galina Gumenchuk, Vladimir Bondybey	<b>THE MODIFICATION OF SOLID NITROGEN BY AN ELECTRON BEAM</b>	200
Nadezhda Shimalina, Elena Antonova, Vera Pozolotina	<b>QUALITY OF PLANTAGO MAJOR L. SEED PROGENY GROWING WITHIN RADIOACTIVE OR CHEMICAL CONTAMINATED AREAS</b>	201
Binh Nguyen Van, Quynh Tran Minh, Diep Tran Bang, Sang Hoang Dang, Thao Hoang Phuong, Thom Nguyen Thi	<b>LOW MOLECULAR WEIGHT XANTHAN PREPARED BY GAMMA IRRADIATION AND ITS EFFECTS ON SEEDLINGS</b>	202
Iryna Kovalchuk, Mechyslav Gzhegotskyi, Vasyl Dukach	<b>THE IMPACT OF RADIATION ON THE FATTY ACID COMPOSITION OF PHOSPHOLIPIDS OF THE BLOOD PLASMA, MYOCARDIUM AND LIVER TISSUES OF RATS</b>	203
Jaroslava Budinski-Simendić, Ayse Aroguz, Milena Marinović-Cincović, Gordana Marković, Ljiljana Korugić-Karasz, Vesna Teofilović, Jelena Tanasić	<b>THE PERFORMANCE ASSESSMENT OF GAMMA IRRADIATED ELASTOMERIC NANOCOMPOSITES</b>	204
Gordana Marković, Milena Marinović-Cincović, Jaroslava Budinski-Simendić, Vojislav Jovanović, Suzana Samaržija-Jovanović, Ljiljana Tanasić, Radmila Radićević	<b>THE HIGH ENERGY IRRADIATION AGEING OF REINFORCED ELASTOMERS BASED ON RUBBER BLENDS</b>	205
Slaviša Jovanović, Gordana Marković, Suzana Samaržija-Jovanović, Milena Marinović-Cincović, Vojislav Jovanović, Jaroslava Budinski-Simendić	<b>THE INFLUENCE OF GAMMA-IRRADIATION ON MECHANICAL PROPERTIES OF NANO-SILICA REINFORCED TERNARY NR/BR/SBR RUBBER BLEND</b>	206

Ângela Fernandes, Amílcar L. Antonio, M. Beatriz P.P. Oliveira, Anabela Martins, Isabel C.F.R. Ferreira	<b>GAMMA RADIATION PRESERVES CHEMICAL AND BIOACTIVE PROPERTIES OF BOLETUS EDULIS WILD MUSHROOMS</b>	207
Joanna Reszczyńska, Ludwik Dobrzyński, Krzysztof Fornalski, Yehoshua Socol	<b>LOW DOSE RADIATION RESPONSE: FROM LIFE SPAN STUDIES TO MATHEMATICAL MODELS</b>	208
Armen Sogoyan, Georgiy Davydov, Aleksy Artamonov, Anna Kolosova, Yuriy Ozhegin, Anna Kameneva	<b>THE IDENTIFICATION OF MICROELECTRONIC DEVICES DURING THE INCOMING CONTROL STAGE</b>	209
Svetlana Sorokina, Svetlana Zaichkina, Olga Rozanova, Sergey Romanchenko, Alsu Dyukina, Helena Smirnova, Alexander Shemyakov, Vladimir Balakin	<b>USE OF CYTOGENETIC ENDPOINTS TO EVALUATE INFLUENCE OF PROTON IRRADIATION ON MICE IN VIVO</b>	210
Ercan Yilmaz, Ramazan Lök, Senol Kaya, Huseyin Karacali	<b>TOTAL-DOSE RADIATION RESPONSE OF HAFNIUM-SILICATE MOS CAPACITORS</b>	211
Ivan Khyzhniy	<b>RADIATION-INDUCED SPECIES MONITORING IN NITROGEN SOLIDS</b>	212
Vlado Antonic, Gurung Ganga, Isabel L. Jackson, Terez Shea-Donohue, Zeljko Vujaskovic	<b>DEVELOPMENT OF NOVEL MURINE MODEL OF COMBINED RADIATION AND PERIPHERAL TISSUE TRAUMA INJURY</b>	213
Dmitry Grodzinsky, Yulia Shylina, Svitlana Pchelovska, Sergii Litvinov, Darina Sokolova, Vladyslav Zhuk, Ludmila Tonkal, Anastasia Salivon, Olena Nesterenko	<b>THE EFFECT OF ACUTE X-RAY IRRADIATION OF MEDICINAL PLANT SEEDS ON THE SECONDARY METABOLITE PRODUCTIVITY</b>	214
Terez Shea-Donohue, Vlado Antonic, Neemesh Desai, Isabel L. Jackson, Zeljko Vujaskovic	<b>THE ROLE OF IMPAIRED MUCOSAL BARRIER FUNCTION IN IRRADIATION-INDUCED CHRONIC GASTROINTESTINAL (GI) SYNDROME</b>	215
Vladimir Anan'ev, Mikhail Miklin, Elena Dyagileva, Valery Pak, Denis Yakubik	<b>VUV PHOTOLYSIS OF CRYSTALLINE ALKALI NITRATES</b>	216
Vladimir Anan'ev, Mikhail Miklin, Valery Pak, Denis Yakubik	<b>PARAMAGNETIC CENTERS FORMATION UNDER RADIOLYSIS OF CRYSTALLINE POTASSIUM PICRATE</b>	217
Elena Pylypchuk, Emilia Domina	<b>EFFECT OF CO-MUTAGENS ON RADIOSENSITIVITY OF HUMAN SOMATIC CELLS</b>	218
Igor Alekseev	<b>THE AMORPHIZATION OF METALLIC ALUMINIUM UNDER THE ACTION OF <sup>57</sup>CO RECOIL NUCLEI</b>	219
Alexandra Demidova, Alexey Kessarinsky	<b>HETEROGENEOUS RADIATION BEHAVIOR OF DIFFERENT SAMPLES OF HONEYWELL SS495A MAGNETIC FIELD SENSOR</b>	220

A.P. Barabashov, I.V. Khyzhniy, S.A. Uytunov, E.V. Savchenko	<b>ELECTRON-STIMULATED DESORPTION OF EXCITED ATOMS FROM SOLID NITROGEN</b>	221
Emanuele Calabrò, Salvatore Magazù	<b>MICROWAVE RADIATION AT 1800 MHZ INDUCES INCREASE OF <math>\beta</math>-TURN AND <math>\beta</math>-SHEET FEATURES IN TYPICAL PROTEINS</b>	222
Emanuele Calabrò, Salvatore Magazù	<b>REORIENTATION OF POLYMER CHAINS CAN BE PRODUCED BY EXTREMELY LOW FREQUENCY ELECTROMAGNETIC FIELD RADIATION</b>	223
Piotr Szajerski, Andrzej Gasiorowski, Joanna Celinska, Henryk Bem	<b>RADIATION EFFECTS IN SULPHUR POLYMER CONCRETE (SPC) MATRIX UNDER HIGH DOSE IRRADIATION</b>	224
Emilia Domina, Elena Pylypchuk	<b>CYTOGENETIC RESEARCH OF CO-MUTAGENES' ROLE IN INCREASING RISK OF CARCINOGENESIS</b>	225
Arkadiusz Mandowski, Rafał Sobota, Ewa Mandowska, Mirosław Kornatka	<b>INVESTIGATION OF SELECTED CERAMIC INSULATORS USING RADIATION-INDUCED THERMOLUMINESCENCE</b>	226
Nurdoğan Can, Mehmet Ayvacikli, Yüksel Karabulut, Laura Muresan, Adil Canimoglu	<b>LUMINESCENCE PROPERTIES OF MG AND RARE EARTH DOPED YTTRIUM ALUMINATE BASED PHOSPHORS</b>	227
Adrian-Ionut Cadis, Laura Elena Muresan, Ioana Perhaita, Lucian Barbu-Tudoran, Emil Indrea	<b>STUDIES ON <math>ZNS:Mn^{2+}</math> PREPARED BY MICROWAVE-ASSISTED SOLYOTHERMAL DECOMPOSITION OF SINGLE-SOURCE MOLECULAR PRECURSORS</b>	228

## 19 RADIATION IN MEDICINE

Nelya Metlyayeva, Andrey Bushmanov, Valery Krasnyuk, Elena Zapadinskaya, Olga Scherbatich, M Bolotnov	<b>THE EVALUATION OF THE ADAPTATION EFFECTIVENESS OF THE MILITARY PERSONNEL AND PERSONNEL OF CHNPP, WHO PARTICIPATED IN THE LIQUIDATION OF THE CHNPP ACCIDENT IN 1986 AND 1987</b>	230
Viacheslav Sukhov, Denis Firsanov, Konstantin Zaplatnikov	<b>DOSIMETRY IN NUCLEAR MEDICINE (PET/CT)</b>	231
Goran Sevo, Marija Tasic, Dalibor Paspalj, Olga Vasovic, Aleksandra Milicevic-Kalasic, Dragana Damnjanovic	<b>SERBIAN TC COHORT: 2016 UPDATE - THERAPEUTIC USE OF X-IRRADIATION DURING 1950S AND ITS DELAYED HEALTH CONSEQUENCES</b>	232
Marina V. Troshina, Anatoly A. Lychagin, Stepan E. Ulianenko, Vladimir I. Potetnyia, Alexey N. Solovev, Sergei N. Koryakin, Vladimir A. Pikalov, Alexander G. Alexeev	<b>RADIOCHROMIC FILM DOSIMETRY IN HIGH ENERGY ION BEAMS</b>	233
Sehad Kadiri, Gezim Hodolli, Gamend Nafezi, Naim Sylja, Meleq Bahtijari, Burim Uka, Kostandin Dollani	<b>EVALUATION OF X-RAY BEAM QUALITY BASED ON MEASUREMENTS IN SOME MEDICAL TREATMENT CENTERS</b>	234

Amra Meštrić, Zijah Rifatbegović, Senija Kunosić, Selma Kunosić	<b>RADIOFREQUENCY ABLATION IN LIVER TUMOR THERAPY</b>	235
Stefan Rafajlovic, Predrag Bozovic, Danijela Arandjic, Sandra Ceklic, Djordje Lazarevic, Olivera Ciraj-Bjelac	<b>MAMMOGRAPHY IN SERBIA: IMAGE QUALITY AND RADIATION DOSE</b>	236
Mirya Kuranova	<b>X-RAY IRRADIATION IN THE DIAGNOSIS OF RARE GENETIC DISEASES</b>	237
Natasha Ivanova, Severina Ivanova	<b>RADIATION PROTECTION OR WHAT IF?</b>	238
Zoran Brnić, Iva Bušić-Pavlek, Saša Schmidt, Tomislav Krpan	<b>OLD AND OUTDATED RADIOLOGY EQUIPMENT IN CROATIA - RADIATION SAFETY AND ECONOMICAL CONSEQUENCES</b>	239
Andrej Petres, Sanja Stojanovic, Predrag Bozovoc, Danijela Arandjic, Viktor Til, Olivera Ciraj-Bjelac	<b>RADIATION EXPOSURE TO PATIENTS AND INTERVENTIONAL RADIOLOGY STAFF DURING PERIPHERAL VASCULAR ANGIOGRAPHY AND INTERVENTION</b>	240
Sanja Knezevic, Bojana Matejic, Zorica Terzic Supic, Petar Bulat	<b>EXPLORING RISK PERCEPTION AND BEHAVIOR CONCERNING OCCUPATIONAL SAFETY PRACTICES AMONG THE PROFESSIONALS IN RADIOLOGY SERVICES</b>	241
Esmeralda Dautović, Una Suljić	<b>RADIOIMMUNOTHERAPY IN THE TREATMENT OF CANCER</b>	242
H. Harrass, M. A. Misdaq, Azeddine Mortassim	<b>DETERMINATION OF BETA RADIATION DOSE TO THYROID FROM THE INGESTION OF RADIOIODINE (<sup>131</sup>I) BY PATIENTS FOR DIAGNOSTIC AND THERAPEUTIC PURPOSES</b>	243
Jozef Sabol, Jana Hudzietzová, Bedrich Sestak	<b>THE ASSESSMENT OF THE EXPOSURE OF RADIATION WORKERS IN NUCLEAR MEDICINE IN THE CZECH REPUBLIC</b>	244

## 20 RADIATION MEASUREMENTS

Şeref Turhan	<b>RADIOACTIVITY LEVELS IN SOILS FROM THE CAPPADOCIA REGION (NEVŞEHİR CITY, TURKEY)</b>	246
Şeref Turhan	<b>DETERMINATION OF TRITIUM ACTIVITY CONCENTRATIONS IN NATURAL WATER SAMPLES</b>	247
Maxim Karetnikov	<b>APPLICATION OF TAGGED NEUTRON TECHNOLOGY FOR RESEARCH, INDUSTRY, AND GLOBAL SECURITY</b>	248
Serkan Akkoyun, Gökhan Koçak, Tuncay Bayram	<b>HALF-LIVES OF THE TITANIUM ISOTOPES FROM PHOTONUCLEAR REACTIONS</b>	249
Andrei I. Apostol, Igor A. Maliuk, Octavian Sima, Nicolae Marginean	<b>METHODOLOGICAL TRIANGULATION APPROACH FOR AGE DETERMINATION OF PLUTONIUM SAMPLE BY HIGH RESOLUTION GAMMA SPECTROMETRY</b>	250
Sung-Kyun Park, Jeong-MIn Park, Yi-Sub Min, Yong-Sub Cho	<b>QT-BASED CONTROL PLATFORM FOR THE RADIATION DOSE DATA MEASURED IN KOMAC</b>	251

Maxim Vasyanovich, Alexey Ekidin, Marina Rogozina, Russkikh Ivan, Fomina Nataliya	<b>SIZE DISTRIBUTION ASSESSMENT OF RADIOACTIVE AEROSOLS AT RESEARCH REACTOR</b>	252
Ingrida Pliopaitė Bataitienė, Renata Mikalauskienė	<b>INVESTIGATION OF REDISTRIBUTION OF ARTIFICIAL (<sup>137</sup>CS, <sup>90</sup>SR) AND NATURAL (<sup>40</sup>K) RADIOISOTOPES IN DIFFERENT USAGE SOILS</b>	253
Margarita Kuqali, Gerti Xhixha, Dhurata Kuqi, Merita Kaceli Xhixha, Manjola Shyti, Gazmend Nafezi, Meleq Bahtijari	<b>A PRELIMINARY STUDY OF THE DISTRIBUTION OF ENVIRONMENTAL RADIOACTIVITY IN THE URBAN AREA OF THE TIRANA CITY, ALBANIA</b>	254
Özlem Karadeniz, Fatih Çoban, Hidayet Karakurt, Rukiye Çakır	<b>DETERMINATION OF RADIOCESIUM LEVELS IN FOREST SOILS OF MOUNT IDA IN TURKEY</b>	255
Buket Canbaz Öztürk, N. Füsün Çam, Günseli Yaprak, Osman Candan	<b>THE NATURAL RADIOACTIVITY IN THE BEACH SAND - CANAKKALE, WESTERN ANATOLIA/TURKEY</b>	256
Victor Ivanov, Anatoli Loutchanski, Vadims Ogorodniks, Viktors Fjodorovs	<b>THE USE OF A NEW GENERATION OF SILICON PHOTOMULTIPLIERS IN PORTABLE GAMMA RADIATION SCINTILLATOR BASED DETECTORS</b>	257
Tímea Hülber, Enikő Kis, Csilla Pesznyák, Katalin Lumniczky, Géza Sáfrány	<b>THE FIRST VALIDATION STEP OF AN AUTOMATIC MICRONUCLEUS COUNTER: THE COMPARISON OF MANUAL AND AUTOMATIC MICRONUCLEUS X-RAY DOSE-EFFECT CURVES</b>	258
Srboljub Stanković, Radovan Ilić, Dragana Nikolić, Boris Lončar	<b>MSV SIGNAL PROCESSING SYSTEM AND CALCULATION OF RATIO (<math>Q_{\text{NEUTRON}}/Q_{\text{GAMMA}}</math>) FOR BF<sub>3</sub> IONIZATION CHAMBER IN CF-252 FIELD</b>	259
María Sofía Martínez García, Alberto Palma, Julia Torres del Río, Fernando Martínez Martí, Aleksandar Jaksic, Miguel Ángel Carvajal Rodríguez	<b>THE ANALYSIS OF THE RADIATION RESPONSE OF ELECTRICAL PARAMETERS OF DIFFERENT MOSFET MODELS</b>	260
Vera Starichenko, Naum Lyubashevskiy	<b>BIOINDICATION AS THE VERIFICATION OF FORMULAS FOR CALCULATING SR-90 DOSE IN THE SKELETON OF SMALL MAMMALS</b>	261
Rohit Mehra, Sarabjot Kaur, Rajan Jakhu, Pargin Bangotra	<b>THE MEASUREMENT OF URANIUM CONCENTRATION IN WATER SAMPLES FOR THE ASSESSMENT OF THE RADIOLOGICAL DOSE IN PATIALA AND THE FATEHGARH DISTRICT OF PUNJAB</b>	262
Sudhir Mittal, Asha Rani, Rohit Mehra, R.C Ramola	<b>ESTIMATION OF NATURAL RADIONUCLIDES HAZARDS AND ANNUAL EFFECTIVE DOSE MEASUREMENT IN SOIL SAMPLES OF NORTHERN RAJASTHAN, INDIA</b>	263
Antonio Cannuli, E. Calabrò, M. T. Caccamo, S. Magazù	<b>A STUDY OF MONITORING HIGH FREQUENCY ELECTROMAGNETIC FIELD POLLUTION IN URBAN AREA</b>	264

Mauro Valente, Rodolfo Figueroa, Francisco Malano, Pedro Perez, Mauricio Santibañez, Jose Vedelago	<b>FRICKE GEL DOSIMETER LAYERS OPTICALLY ANALYZED FOR QUALITY ASSURANCE IN STEREOTACTIC RADIOSURGERY</b>	265
Nevenka Antović, Sergey Andrukhovich	<b>ASYMMETRY IN EXPERIMENTS TESTING CPT IN ORTHO-<math>P_s</math> DECAYS</b>	266
Silvia Vargas Castrillon, Francisco Cutanda Henriquez	<b>ON THE USE OF A PARALLEL PLATE ION CHAMBER FOR FFF PHOTON PDDS MEASUREMENTS</b>	267
David Chacón, Facundo Mattea, Mauro Valente	<b>THE DEVELOPMENT AND CHARACTERIZATION OF A NOVEL POLYMER GEL DOSIMETER BASED ON ITACONIC ACID FIXED TO A GEL MATRIX WITH GLUTARALDEHYDE</b>	268
Alexandra Demidova, Mikhail Koroteev, Alexey Borisov	<b>THE DOSE RATE INDUCED DANGER PARAMETER DETERIORATION OF THE LOGIC LEVEL CONVERTERS IN THE SWITCHED-OFF MODE</b>	269
Paul Atta Amoah, Raymond Agalga, Ann Mensah, Simon Adu, Daniel Nii Adjei, Michael Ansah, Sheila Victoria Gbomittah	<b>RADIATION DOSE RATE MEASUREMENTS AROUND A NUCLEAR INSTALLATION</b>	270
Abdus Sattar Mollah, Md. Ashrafal Alam, Sabiha Sattar, M. Altab Hossain, Abu Zafor M. Salahuddin	<b>ROBOT-BASED SYSTEM FOR MONITORING OF IONIZING RADIATION IN NUCLEAR ENVIRONMENT</b>	271
Antonio Cannuli, Emanuele Calabrò, Maria Teresa Caccamo, Salvatore Magazu	<b>MEASUREMENTS AND EFFECTS OF MICROWAVE RADIATION EMITTED BY WIRELESS COMMUNICATION DEVICES</b>	272
Sudhir Mittal, Asha Rani, Rohit Mehra	<b>ESTIMATION OF ANNUAL EFFECTIVE DOSE DUE TO RADON AND THORON LEVEL IN INDOOR AIR OF NORTHERN RAJASTHAN, INDIA</b>	273
Azeddine Mortassim, My Ali Misdaq, Aziz Chaouqi, Jamal Ougidi, A Chaib	<b>THE MEASUREMENT OF <math>^{238}\text{U}</math> AND <math>^{232}\text{Th}</math> IN PETROL, GAS-OIL AND LUBRICANT SAMPLES BY USING NUCLEAR TRACK DETECTORS AND RESULTING RADIATION DOSES TO THE SKIN OF MECHANIC WORKERS</b>	274
B. Elouardi, M.A. Misdaq, Azeddine Mortassim	<b>ALPHA RADIATION DOSES TO THE EYES OF INDIVIDUALS WEARING OPTICAL GLASSES</b>	275
A. Aitayoub, M.A Misdaq, Azeddine Mortassim, Aziz Chaouqi	<b>THE ANALYSIS OF <math>^{238}\text{U}</math>, <math>^{232}\text{Th}</math> AND <math>^{222}\text{Rn}</math> IN VARIOUS FISH SAMPLES AND RESULTING RADIATION DOSES TO THE CONSUMERS</b>	276

A Matrane, M.A Misdaq, Azeddine Mortassim, H Erramli	<b><math>^{238}\text{U}</math> AND <math>^{232}\text{Th}</math> CONCENTRATIONS MEASURED IN DIFFERENT MEDICAL DRUGS BY USING SOLID STATE NUCLEAR TRACK DETECTORS AND RESULTING RADIATION DOSES TO THE SKIN OF PATIENTS</b>	277
Josipa Madunic, Slavica Brkic	<b>CONTAMINATED AREAS OF SOUTHERN BOSNIA AND HERZEGOVINA</b>	278
Ivan Iliev	<b>AIRBORNE GAMMA-SPECTROMETRY MAPPING</b>	279
Abdel-Hai Benali	<b>COMPARATIVE STUDY OF RPL GD-301, TLD-100 AND <math>\text{Al}_2\text{O}_3:\text{C}</math> DETECTOR RESPONSES BY MONTE CARLO SIMULATION</b>	280
Ewa Mandowska, Renata Majgier, Arkadiusz Mandowski	<b>SPECTRAL PROPERTIES OF ULTRA-WEAK THERMOLUMINESCENCE IN SELECTED DETECTORS</b>	281
Rohit Mehra	<b>THE MEASUREMENT OF URANIUM CONCENTRATIONS IN WATER SAMPLES FOR THE ASSESSMENT OF THE HAZARD QUOTIENT</b>	282

## 21 RADIATION ONCOLOGY

Petar Chakalaroski, Violeta Klisarovska, Igor Stojkovski, Jasmina Djundeva	<b>HYPOFRACTIONATED SUPERFICIAL HIGH DOSE RATE BRACHYTHERAPY IN TREATMENT OF NON-MELANOMA SKIN CANCERS</b>	284
Javed Mahmood, Radmila Pavlovic, Isabel Jackson, Zeljko Vujaskovic	<b>THE MOLECULAR MECHANISM INVOLVED IN RADIATION-INDUCED ERECTILE DYSFUNCTION (RIED)</b>	285
Violeta Klisarovska, Petar Chakalaroski, Snezana Smickoska, Igor Stojkovski, Nadica Dimitrovska, Zoran Stefanovski, Jasmina Djundeva	<b>SINGLE INSTITUTION EXPERIENCE OF TWO-DIMENSIONAL VERSUS TRI-DIMENSIONAL INTRACAVITARY BRACHYTHERAPY IN LOCALLY ADVANCED CERVICAL CARCINOMA</b>	286
Ramune Mineikyte, Vydmantas Atkocius	<b>RADIOTHERAPY IN LITHUANIA - FROM COBALT TO LINAC</b>	287
Vydmantas Atkocius	<b>SECOND PRIMARIES (SP): IMPACT OF HDR <math>^{252}\text{Cf}</math> BRACHYTHERAPY NEUTRON IRRADIATED VOLUME AND DOSE</b>	288
Igor Stojkovski, Milan Risteski, Violeta Klisarovska, Petar Chakalaroski	<b>COMPARISON OF DOSES AND VOLUMES OF TARGETS AND ORGANS AT RISK IN PATIENTS WITH HIGH GRADE GLIOMA IRRADIATED WITH TWO DIFFERENT TECHNIQUES</b>	289
S. Georgieva, I. Payanova, R. Lazarov, Z. Spassova, I. Apostolova	<b>ADJUVANT RADIOTHERAPY OF MALIGNANT TRITON TUMORS (MTT)</b>	290

Nataša Anastasov

**THREE-DIMENSIONAL MICROTISSUES AS PHENOTYPIC MODELS TO CATEGORIZE ACTIVITY OF RADIATION MODIFIERS**

291

## **22 RADIATION PHYSICS**

Tuncay Bayram, Serkan Akkoyun,  
Necati Çelik, Emel Hacıslamoğlu,  
Serhat Uruk, Şevki Şentürk

**PHOTONUCLEAR REACTION CROSS SECTIONS FOR Xe-131**

293

Olga Bliznjuk,  
Alexander Ogurtsov

**INELASTIC SCATTERING, ENERGY LOSS AND CHANNELING OF PHOTOELECTRONS IN N<sub>2</sub> DOPED SOLID Kr**

294

Anna Selva, Valeria Conte,  
Paolo Colautti, Berndt Grosswendt

**EXPERIMENTAL NANODOSIMETRY OF 25 MeV PROTONS AT DNA SCALE**

295

B. Firoozi,  
M. Malek Mohammadi,  
S. M. Hosseini Pooya

**ALLOWED AND FIRST-FORBIDDEN UNIQUE BETA DECAY STUDY OF <sup>16</sup>N TO <sup>16</sup>O IN RANDOM PHASE APPROXIMATION FRAMEWORK**

296

George Ryazantsev,  
Maxim Khaskov

**NEUTRINO RESONANT INTERACTION AS A POSSIBLE REASON OF NUCLEAR OBJECT ACCIDENTS**

297

Slobodan Milutinović,  
Filip Jeremić, Marko Mišić,  
Miloš Vujišić, Predrag Marinković

**PLATFORM DEPENDENT EFFICIENCY OF A MONTE CARLO CODE FOR TISSUE NEUTRON DOSE ASSESSMENT**

298

Anna Kozlova, Nina Kozlova,  
Evgenia Zabelina,  
Dmitriy Spasskiy,  
Marina Voronova,  
Kirill Shcherbachev

**RADIATION-INDUCED DEFECTS AND DICHROISM IN LA<sub>3</sub>GA<sub>5.5</sub>TA<sub>0.5</sub>O<sub>14</sub> CRYSTALS**

299

Elena Lagzdina, Rita Plukienė,  
Artūras Plukis, Andrius Puzas,  
Andrius Garbaras,  
Danielius Lingis,  
Jevgenij Garankin,  
Vidmantas Remeikis

**<sup>14</sup>C ANALYSIS OF THE GRAPHITE DISPOSAL FROM RBMK-1500 REACTOR**

300

Dusan Mrdja, Kristina Bikit,  
Istvan Bikit, Jaroslav Slivka,  
Sofija Forkapic

**OPTIMIZATION OF THE HPGE DETECTOR SHIELD BY MONTE-CARLO SIMULATIONS**

301

Elvin Erdoğan,  
Elvin Erdoğan,  
Oya Güneylı,  
Melahat Garıpgaoglu,  
Halil Kucucuk

**THE EFFECT OF FFF FOR PATIENTS RECEIVING PELVIC RADIOTHERAPY USING VOLUMETRIC MODULATED ARC THERAPY (VMAT) TECHNIQUE**

302

M. Popovic, M. Nestic,  
D. Todorovic, D. Milicevic,  
S. Trifunovic, E. Suljovrujic,  
S. Galovic

**A STUDY OF GAMMA-IRRADIATED POLY-L-LACTIDE BY DYNAMIC THERMAL TECHNIQUES**

303

Madhavi Thakurdesai,  
Smita Survase

**C<sub>6</sub>T<sub>E</sub> NANOPHASE FORMATION USING SWIFT HEAVY ION IRRADIATION**

304

Radmila Panajotovic,  
Jasna Vujin,  
Djordje Jovanovic

**ELECTRON-BEAM DAMAGE FROM SEM TO LIPID-(GRAPHENE, MoS<sub>2</sub>, WS<sub>2</sub>) HETEROSTRUCTURES**

305



Dimitrije Maletic, Dejan Jokovic, Radomir Banjanac, Vladimir Udovicic, Aleksandar Dragic, Nikola Veselinovic, Mihailo Savic	<b>VARIATION OF MUON COSMIC RAY FLUX RECORDED BY BELGRADE COSMIC RAY STATION DURING DECEMBER 2015 AND COMPARISON WITH EUROPEAN NEUTRON FLUX MONITORS</b>	306
Piotr Szajerski, Andrzej Gasiorowski, Malgorzata Jakubowska	<b>DOSIMETRIC BEHAVIOR OF RARE EARTH DOPED PHOSPHATE GLASSES AND POLYTETRAFLUOROETHYLENE COMPOSITES</b>	307
Liliia Elnikova, Olga Iliyukhina, Eugenii Prokop'ev, Yurii Funtikov	<b>APPLICATIONS OF POSITRON ANNIHILATION SPECTROSCOPY FOR INVESTIGATIONS OF ORGANIC LIQUIDS</b>	308
Mauro Valente, Rodolfo Figueroa, Francisco Malano, Mauricio Santibañez	<b>MONTE CARLO SIMULATIONS TO OPTIMIZE THE SETUP FOR THE DETECTION OF AU NANOPARTICLES IN TUMORS</b>	309

## 23 RADIATION PROTECTION

Sibel Karaca, Önder Şimşek, Özgür Yeşiloğlu	<b>THE VIEWS AND THOUGHTS OF PRIMARY SCHOOL STUDENTS ABOUT RADIATION</b>	311
Vijay Singh, Martin Hauer-Jensen	<b>THE DEVELOPMENT OF GAMMA-TOCOTRIENOL AS A RADIATION COUNTERMEASURE FOR THE ACUTE RADIATION SYNDROME</b>	312
Nataša Tomić-Petrović	<b>THE RISK AND PROTECTION FROM IONIZING RADIATION AT WORK AND IN EVERYDAY LIFE</b>	313
M. Malek Mohammadi, S. M. Hosseini Pooya, B. Firoozi	<b>PERFORMANCE CHARACTERISTICS OF A HOME-MADE TLD READER; PRELIMINARY RESULTS</b>	314
Constantin Popescu, Gabi Rosca Fartat, Constantin Stanescu	<b>THE HORIZONTAL FUEL CHANNEL PRESSURE TUBE DECOMMISSIONING IN THE CANDU 6 NUCLEAR REACTOR</b>	315
Constantin Popescu, Gabi Rosca Fartat, Constantin Stanescu	<b>THE HORIZONTAL FUEL CHANNEL PRESSURE TUBE DECOMMISSIONING IN THE CANDU 6 NUCLEAR REACTOR PART I: CUTTING AND EXTRACTING DEVICE PRESENTATION</b>	316
Constantin Popescu, Gabi Rosca Fartat, Constantin Stanescu	<b>THE HORIZONTAL FUEL CHANNEL PRESSURE TUBE DECOMMISSIONING IN THE CANDU 6 NUCLEAR REACTOR PART II: CUTTING AND EXTRACTING DEVICE FUNCTIONING PRESENTATION</b>	317
Constantin Popescu, Gabi Rosca Fartat, Constantin Stanescu	<b>THE HORIZONTAL FUEL CHANNEL PRESSURE TUBE DECOMMISSIONING IN THE CANDU 6 NUCLEAR REACTOR PART III: OPERATING THE CUTTING AND EXTRACTING DEVICE</b>	318
Gabi Rosca Fartat, Constantin Popescu, Constantin Stanescu	<b>THE HORIZONTAL FUEL CHANNELS IN THE CANDU 6 NUCLEAR REACTOR PART IV: DISMANTLING MAIN STEPS WITH THE DECOMMISSIONING DEVICE</b>	319

Gabi Rosca, Constantin Popescu, Constantin Stanescu	<b>THE HORIZONTAL FUEL CHANNELS IN THE CANDU 6 NUCLEAR REACTOR PART V: DECOMMISSIONING DEVICE OPERATING PRESENTATION</b>	320
Andrew Gapeyev, Nina Lukyanova, Sergey Gudkov	<b>DEPENDENCE OF RADIATION PROTECTIVE EFFECTS OF EXTREMELY HIGH-FREQUENCY ELECTROMAGNETIC RADIATION ON EXPOSURE PARAMETERS</b>	321
Aleksander Mladenov, Tsvetana Nonova, Dobromir Dimitrov, Kiril Krezhov	<b>RADIOACTIVE WASTE MANAGEMENT AT THE NUCLEAR SCIENTIFIC AND EXPERIMENTAL CENTRE OF INRNE-BAS</b>	322
Sergei Lovachev	<b>ESTIMATION OF INDIVIDUALIZED RADIATION RISK OF CHRONIC OCCUPATIONAL EXPOSURE DUE TO INHALATION INTAKE OF U<sup>234</sup></b>	323
Nguyen Thi Cam Tu, Nguyen Ngoc Anh	<b>CALCULATION OF RADIATION SHIELDING FOR MEGAVOLTAGE GAMMA RAY FACILITY USING MONTE CARLO CODE EGS<sub>NRC</sub></b>	324
Dragana Stojiljković, Ivana Arsić, Vanja Tadić	<b>OIL EXTRACTS OF WILD APPLE FRUIT AS ACTIVE SUBSTANCES IN UV PROTECTION PREPARATIONS</b>	325
Julius Ziliukas, Boris Andonovski, Giorgi Nabakhtiani, Panicos Demetriades, Ion Ursulean, Rodolfo Cruz Suarez, Burcin Okyar, Olivera Ciraj Bjelac	<b>REGIONAL EAST EUROPEAN AND CENTRAL ASIAN ALARA NETWORK (RECAN): NETWORKING FOR IMPROVING THE OCCUPATIONAL RADIATION PROTECTION</b>	326
Nataša Todorović, Silvija Lučić, Dragana Marić, Dragan Golubović, Jovana Nikolov, Miodrag Krmar	<b>RADIATION EXPOSURE OF NUCLEAR MEDICINE STAFF WORKING WITH RADIONUCLIDES <sup>99m</sup>Tc AND <sup>131</sup>I</b>	327
Julie Haglund	<b>SHIELDING REQUIREMENTS FOR PET/CT USING THE AAPM TASK REPORT 108</b>	328
Aleksandra Volchkova, Elena Shishkina, Bryan Schwarz, Wesley Bolch, Evgenia Tolstykh, Marina Degteva	<b>ORGAN DOSE RATES DUE TO <sup>137</sup>Cs/<sup>137m</sup>Ba CONTAMINATION OF SOIL DEPEND ON DEPTH OF RADIONUCLIDE DEPOSITION AND AGE OF A PERSON</b>	329
Stoyan Papanov, Ekaterina Petkova, Violeta Grudeva	<b>USE AND ANTIOXIDANT CHARACTERISTICS OF COFFEE</b>	330
Elena Shishkina, Aleksandra Volchkova, Marina Degteva, Bruce Napier, Bryan Schwarz, Wesley Bolch	<b>AIR KERMA-TO-ORGAN DOSE CONVERSION COEFFICIENTS FOR HUMANS STAYING ON THE CONTAMINATED SOIL</b>	331
Yulia Lysak, Boris Narkevich, Vladimir Klimanov	<b>THE REASONS FOR THE FEASIBILITY OF OUTPATIENT RADIONUCLIDE THERAPY</b>	332
Natasa Todorovic, Zeljko Grahek, Nataša Sarap, Ivana Stojkovic, Jovana Nikolov, Ivana Coha, Marija Jankovic	<b>DIFFERENT METHODS FOR <sup>90</sup>Sr DETERMINATION IN WATER</b>	333

Julie Haglund	<b>DEVELOPING A CULTURE OF RADIATION PROTECTION IN THE HOSPITAL ENVIRONMENT</b>	334
Magdalena Długosz-Lisiecka	<b>COLLECTIONS OF RADIOACTIVE MINERALS IN GEOLOGICAL MUSEUMS</b>	335
Paulo Ernesto de Oliveira Lainetti	<b>SURFACE RADIOACTIVE DECONTAMINATION BY MOLTEN SALT STRIPPING</b>	336
H. Harrass, M.A. Misdaq, Azeddine Mortassim, Jamal Ouguidi	<b>THE DETERMINATION OF ALPHA RADIATION DOSE TO SKIN DUE TO THE APPLICATION OF DIFFERENT RADIOPHARMACEUTICALS</b>	337
Jozef Sabol, Bedrich Sestak	<b>EDUCATION IN RADIATION PROTECTION AND RADIATION RISK COMMUNICATION WITH THE PUBLIC</b>	338
Zoran Jovanović, Dragana Krstić, Paolo Ferrari, Eleftheria Carinou, Vadim Chumak, Jad Farah, Sara Principi, Artem Morgun, Frank Becker, Pedro Teles	<b>THE STUDY OF THE RADIATION SCATTER IN INTERVENTIONAL CARDIOLOGY THROUGH MONTE CARLO SIMULATIONS: THE EURADOS WORKING GROUP NO.12 APPROACH</b>	339
Natasa Todorovic, Nemanja Golubovac, Jovana Nikolov, Krmar Miodrag	<b>STRUCTURAL SHIELDING DESIGN FOR RADIOGRAPHIC ROOM BY SCATTERED RADIATION MEASUREMENT</b>	340
Abdulameer Kazem Farhood, Laith Mohamad Rasheed	<b>A STUDY OF RADON CONCENTRATIONS AND RADIATION DOSE LEVELS IN SALT SAMPLES EXTRACTED FROM THE SAMAWA SALTERN - IRAQ</b>	341
Djurdjica Milkovic, Maria Ranogajec-Komor, Lovro Kavur	<b>OUR EXPERIENCE IN DOSIMETRY AND RADIATION PROTECTION IN PEDIATRIC CHEST X-RAY DIAGNOSTICS</b>	342
Samoilov Alexander, Andrey Bushmanov, Andrey Kretov	<b>PREVENTION OF MEDICAL CONTRAINDICATIONS AT WORK / NEW ASPECT OF OCCUPATIONAL HEALTH SYSTEM</b>	343
Paul Atta Amoah, Ann Mensah, Raymond Agalga	<b>NUCLEAR SECURITY CULTURE: EVALUATION OF CONCEPT AND IMPLEMENTATION (CASE STUDY: TWO FACILITIES AT THE GHANA ATOMIC ENERGY COMMISSION PREMISES)</b>	344

## 24 RADIOBIOLOGY

Denis Firсанov, Ljudmila Solovieva, Vyacheslav Soukhov, Maria Svetlova	<b>THE IMPAIRMENT OF DNA DOUBLE-STRAND BREAK REPAIR IN PRESENESCENT HAMSTER FIBROBLASTS AFTER BLEOMYCIN ACTION</b>	346
Natalia Koltovaya, Nadya Zhuchkina, Alexandra Kokoreva, Natalia Shvaneva	<b>KINETICS OF UV-INDUCED GENE AND STRUCTURAL MUTATIONS</b>	347
Vladimir Nugis, Maria Kozlova	<b>THE CYTOGENETIC DOSE EVALUATION AFTER NON-UNIFORM IRRADIATION</b>	348

Anna Suponkina, Michael Zhukovsky, Anna Krivonogova, Kseniya Shcherbakova, Kseniya Moiseeva	<b>RADIATION SENSITIVITY OF BACTERIA CONTAMINATING FOOD</b>	349
Aleksei Solovev, Aleksandr Chernukha, Vladimir Potetnya, Stepan Uliyanenko	<b>TOWARDS ACCURATE SIMULATION OF RBE AND RADIATION- INDUCED DAMAGE IN CARBON ION BEAMS USING GEANT4</b>	350
Željko Milosavljević, Nikola Krstić, Branislava Mitrović, Mirjana Lazarević Macanović	<b>EFFECTS OF EXPERIMENTALLY IRRADIATED PITUITARY GLAND ON SOME MORPHOLOGICAL PARAMETERS OF RATS' HEAD, BODY AND TIBIA</b>	351
Quynh Tran Minh, Van Doan Hong, Tuan Dinh Ba, Thom Nguyen Thi, Anh Tran Tuan, Ngan Nguyen Thuy, Thuan Ta Bich, Lan Vo Thi Thuong	<b>STUDY OF DNA DAMAGES INDUCED BY UV RADIATION</b>	352
Ekaterina V. Koryakina, Vladimir I. Potetnya, Raisa M. Baykuzina, Marina V. Troshina	<b>CYTOGENETIC EVIDENCE OF HRS/IRS EFFECTS IN CHINESE HAMSTER CELLS FOLLOWING CARBON-12 IONS IRRADIATION</b>	353
Tetiana Andriichuk, Nataliia Raksha, Svitlana Lugova, Ludmila Ostapchenko	<b>ATP-DEPENDENT STEPS OF RADIATION-INDUCED APOPTOSIS</b>	354
Svetlana Belkina	<b>OPTIMIZING THE EFFICIENCY OF THE SEQUENTIAL THERMORADIATION THERAPY IN ONCOLOGY</b>	355
Nadezhda Kudryasheva, Tatiana Rozhko, Oleg Guseynov	<b>ON THE MECHANISM OF BIOLOGICAL ACTIVATION BY RADIONUCLIDE SOLUTIONS</b>	356
Arjana Ylli, Ilirjana Stamo, Laura Binxhija	<b>INFLUENCE OF MUTAGENS ON DECORATIVE PLANTS</b>	357
Arjana Ylli, Malvina Karcini, Laura Binxhija	<b>INDUCED MUTAGENESIS APPLIED IN BEAN SEEDS</b>	358
Orjeta Jaupaj, Ilirjana Stamo, Vladimir Malo	<b>GENETIC IMPROVEMENT BY MEANS OF <math>\gamma</math> RAY TECHNIQUES IN <i>TRITICUM AESTIVUM</i>: RESULTS ON DAVID X MEC VARIETY</b>	359
Orjeta Jaupaj, Ilirjana Stamo, Miranda Deda, Vladimir Malo, Nikollaq Bardhi	<b>PLANT HEIGHT REDUCTION BY MEANS OF <math>\gamma</math>-RAY TECHNIQUES IN THREE GENOTYPES OF TRITICUM</b>	360
Sergey Milyukov, Yulia Lysak, Georgy Panshin, Natalia Kharchenko, Sergey Golub, Timur Izmailov	<b>CLINICAL RADIOBIOLOGY OF INFILTRATIVE LOW-GRADE GLIOMAS (GRADE II)</b>	361
Elena V. Antonova, Natal'ya A. Orekhova, Vera N. Pozolotina	<b>CORRELATION BETWEEN PHYSIOLOGICAL AND BIOCHEMICAL STATUS OF <i>SILENE LATIFOLIA</i> SEEDLINGS FROM KYSHTYM ACCIDENT (RUSSIA, URALS)</b>	362

Stanislav Vasilyev, Alena Velichevskaya, Tatyana Vishnevskaya, Nikolay Skryabin, Andrey Belenko, Alena Agab, Alexey Sleptsov, Eugenia Sukhikh, Olga Gribova, Zhanna Startseva, Igor Lebedev	<b>EFFECTS OF SPONTANEOUS <math>\gamma</math>H2AX LEVEL ON GENE EXPRESSION IN HUMAN SOMATIC CELLS</b>	363
Francisco Cutanda, Silvia Vargas Castrillón	<b>A MATHEMATICAL APPROACH TO THE COMPOSITION OF TUMOUR CONTROL PROBABILITIES FOR HYPOFRACTIONATED SCHEDULES AND REPLANNED TREATMENTS</b>	364
Ljudmila Lioshyna, Olga Bulko, Svitlana Pchelovska, Anastasiya Berestyayana, Darina Sokolova	<b>EFFECT OF X-RAY ON PLANTS AND HAIRY ROOTS OF DIGITALIS PURPUREA L.</b>	365
Elena Grigorkina, Grigory Olenev, Oleg Tarasov	<b>ADAPTATION MECHANISM OF SMALL MAMMAL POPULATIONS TO ACUTE AND LOW LEVEL CHRONIC EXPOSURE</b>	366
Milan Vujović, Danijela Maksin, Miloš Vujisić	<b>MICRODOSIMETRIC SIMULATIONS FOR TESTING CELL RADIOSENSITIVITY</b>	367
Valeria Hadjidekova, Jenja Vasileva, Emil Sultanov	<b>THE EFFECT OF IONIZING RADIATION ON THE EMBRYO AND FETUS: REAL CASE STUDIES</b>	368
Natalia Koltovaya, Nadya Zhuchkina, Natalia Shvaneva	<b>PROTON INDUCTION OF GENE MUTATIONS</b>	369
Nadezda Giliano, Leonid Konevega, Sergey Stepanov, Elena Zhurichkina, Sergey Akulinichev, Vasili Derzhiev, Sergey Chaushansky	<b>EFFICACY OF YTTERBIUM SOURCES TO INDUCE LETHAL AND CYTOGENETIC DAMAGES IN HUMAN CELLS IN CULTURE</b>	370
Gayle Woloschak, Sumita Raha, Tatjana Paunesku	<b>NATIVE REGULATION OF MICRO RNA <math>miR-1195</math> IS NECESSARY FOR RADIATION RESISTANCE IN MOUSE THYMIC LYMPHOMA CELL LINES</b>	371
Tatjana Paunesku, Benjamin Haley, Gayle Woloschak	<b>THE DOSE RATE EFFECTIVENESS FACTOR CALCULATIONS USING ANIMAL ARCHIVE DATA</b>	372
Nikoghos Hovhannisyan, Anahit Karapetyan, Vahan Grigoryan	<b>EVALUATION OF ENDOCRINE DISORDERS IN LIQUIDATORS OF CHERNOBYL NUCLEAR POWER PLANT</b>	373
Svetlana Zunic, Ljubisa Rakic	<b>THE PETKAU EFFECT IS A WAVE PHENOMENON</b>	374
Anahit Karapetyan	<b>IMMUNE SYSTEM ASSESSMENT OF CHERNOBYL NUCLEAR POWER PLANT DISASTER CONSEQUENCE LIQUIDATORS</b>	375
Anna Antsiferova, Vyacheslav Demin, Pavel Kashkarov, Mikhail Kovalchuk	<b>PROLONGED ADMINISTRATION BIOKINETICS OF Ag NANOPARTICLES IN MAMMAL ORGANISMS</b>	376

Vyacheslav Demin,  
Anna Antsiferova, Vladimir  
Demin, Yurii Buzulukov, Pavel  
Kashkarov

**SELENIUM BIOKINETICS STUDY BOTH BY TERMS  
OF NUCLEAR-PHYSICAL METHOD  
AND NUMERICAL MODELING**

377

**25 RADIOCHEMISTRY AND RADIATION  
CHEMISTRY**

Anastasia Zlobina,  
Leonid Rikhvanov,  
Nanping Wang,  
Irina Matveenکو

**THE NATURE OF HIGH SOIL RADIOACTIVITY  
IN THE CHINESE PROVINCE OF GUANGDONG**

379

Berkan Cetinkaya, Suleyman Inan,  
Yuksel Altas, Huseyin Tel

**THE SYNTHESIS OF HYDROUS (ZR-SI)O<sub>2</sub> SPHERES  
BY THE SOL-GEL METHOD AND THE INVESTIGATION OF  
COLUMN PARAMETERS FOR SIMULATED WASTE SOLUTIONS**

380

Renata Mikalauskiene,  
Jonas Mažeika

**INVESTIGATION OF DIFFERENT RADIOCHEMICAL  
PROCEDURES USING ANION EXCHANGE RESIN COLUMN  
FOR DETERMINATION OF LEAD-210 BY LIQUID  
SCINTILLATION COUNTER**

381

Nadezhda Shchepina,  
Viktor Avrorin, Gennadii Badun,  
Roman Shchepin

**NUCLEAR-CHEMICAL METHOD - NEW WAY FOR SYNTHESIS  
OF TRITIUM LABELED RADIOTRACERS WITH FLUORINE  
SUBSTITUTED HETEROCYCLIC STRUCTURE**

382

Zita Žukauskaitė,  
Benedikta Lukšienė,  
Olga Jefanova

**INVESTIGATION OF PU (III) SORPTION BY MINERALS  
(WUSTITE/MAGNETITE AND HEMATITE) AND SOIL FROM  
AQUATIC SOLUTIONS USING AM (III) AS AN ANALOGUE**

383

Violeta Pintilie,  
Lucian-Puiu Georgescu,  
Luminita Moraru,  
Antoaneta Ene,  
Catalina Iticescu

**NATURAL RADIOACTIVITY IN DRINKING WATER  
FROM GALATI AND VRANCEA AREAS, ROMANIA**

384

Akos Banyasz,  
Tiia Maria Ketola,  
Luciana Esposito, Marion Perron,  
Pascale Changenet-Barret,  
Lara Martinez, Jean-Luc Ravanat,  
Thierry Douki, Roberto Improta,  
Dimitra Markovitsi

**UV-INDUCED ONE-PHOTON IONIZATION OF DNA  
AND OXIDATIVE DAMAGE**

385

Yuriy Demidov,  
Alexander Rusakov,  
Andrei Zaitsevskii

**INTERACTION OF SUPERHEAVY ELEMENTS (COPERNICIUM  
AND FLEROVIUM) WITH SELENIUM SURFACE: RELATIVISTIC  
DENSITY FUNCTIONAL STUDY**

386

Branislava Tenjovic,  
Nataša Todorovic, Jovana Nikolov,  
Ivana Stojković, Jelena Spasojević

**DETERMINATION OF <sup>90</sup>SR VIA CHERENKOV RADIATION  
ON QUANTULUS 1220 LIQUID SCINTILLATION COUNTER  
AFTER MICROWAVE DIGESTION PREPARATION OF MILK  
SAMPLES**

387

Nikolai Chernorukov,  
Oxana Nipruk, Elena Kostrova,  
Chaplieva Kseniya

**SYNTHESIS AND STUDY OF POTASSIUM URANATE**

388

Jana Strišovská, Dušan Galanda, Silvia Dulanská, Jozef Kuruc	<b>A SEPARATION PROCEDURE FOR THE DETERMINATION OF NEPTUNIUM AND PLUTONIUM ISOTOPES BY EXTRACTION CHROMATOGRAPHY</b>	389
Nikolai Alov, Pavel Sharanov, Daria Filatova	<b>TOTAL REFLECTION X-RAY FLUORESCENCE ANALYSIS OF ADVANCED OXIDE NANOMATERIALS</b>	390
Nikolay Chernorukov, Nipruk Oxana, Kseniya Chaplieva, Elena Kostrova	<b>SYNTHESIS AND STUDY OF PLUMBUM URANATE WITH GENERAL FORMULA <math>Pb(UO_2)_2O_2(OH)_2 \cdot H_2O</math></b>	391
Nagima Dzhakipbekova, Aziza Issa, Aisulu Alzhanova	<b>RADIOPROTECTIVE TECHNOLOGY TO PRODUCE CONSTRUCTION MATERIALS FOR NUCLEAR POWER BASED ON THE SULFUR BINDING</b>	392
Catalin Vancea, Maria Demeter, Ionut Calina, Anca Scarisoreanu, Elena Stancu, Eugenia Badita	<b>SYNTHESIS OF SUPERABSORBENT XANTHAN-REDUCED OXIDE GRAPHENE HYDROGELS USING ELECTRON BEAM IRRADIATION</b>	393
Anca Scarisoreanu, Maria Demeter, Catalin Vancea, Elena Stancu, Eugenia Badita, Ionut Calina	<b>THE RADIATION SYNTHESIS AND CHARACTERIZATION OF THE NETWORK STRUCTURE OF COLLAGEN-PVP SUPERABSORBENT HYDROGELS</b>	394
Laima Nedzveckienė, Benedikta Lukšienė	<b>DETERMINATION OF PLUTONIUM SORPTION CAPACITY IN DIFFERENT TYPES OF SOIL</b>	395
Jelena Krstic, Aleksandra Radosavljevic, Jelena Spasojevic, Momcilo Djuric, Dragutin Jovanovic, Srdjan Popovic, Zorica Kacarevic-Popovic	<b>ANTIBACTERIAL <math>Ag</math>-POLY(VINYL ALCOHOL)/WS CHITOSAN HYDROGEL SYNTHESIZED BY GAMMA IRRADIATION</b>	396
Alicia Negron-Mendoza, Sergio Ramos-Bernal, Maria Colin-Garcia, Alejandro Heredia	<b>CHEMICAL EVOLUTION: AN APPROACH FROM RADIATION CHEMISTRY</b>	397
Alicia Negron-Mendoza, Ellen Aguilar-Ovando, Jorge Cruz-Castañeda Cruz- Castañeda, Thomas Buhse	<b>RADIOLYSIS OF AQUEOUS GLYCERALDEHYDES AT DIFFERENT IRRADIATION TEMPERATURES</b>	398

## 26 RADIOECOLOGY

Aleksander Nikitin, Olga Shurankova, Olga Popova, Raisa Korol	<b>THE QUANTITATIVE ASSESSMENT OF THE PERORAL INTAKE OF TRANSURANIUM ELEMENTS BY THE WILD HOOFED ANIMALS INHABITING THE POLESSIE STATE RADIATION- ECOLOGICAL RESERVE</b>	400
Yuriy Kutlakhmedov, Irina Matveeva	<b>THE ENVIRONMENTAL STANDARDIZATION OF RADIATION FACTORS FOR THE BIOTA ECOSYSTEMS</b>	401

Yuriy Kutlahkmedov	<b>RADIOECOLOGICAL RELIABILITY AND RADIOCAPACITY OF DIFFERENT ECOSYSTEMS</b>	402
Kutlahkmedov Yuriy, Pchelovska Svitlana, Salivon Asya, Tonkal Ludmila	<b>ISSUES OF SYNERGY AND ANTAGONISM OF RADIATION AND CHEMICAL FACTORS</b>	403
Branislava Mitrović, Svetlana Grdović, Borjana Vranješ, Mihajlo Vićentijević, Jelena Ajtić, Darko Sarvan	<b>RADIOECOLOGICAL INVESTIGATION IN THE ENVIRONMENT OF BELGRADE CITY, SERBIA</b>	404
Borjana Vranjes, Branislava Mitrovic, Velibor Andric, Svetlana Grdovic	<b>RADIOACTIVITY IN ENVIRONMENT OF STARA PLANINA MOUNTAIN IN AREA OF SUMMER SCHOOL FOR MOUNTAIN ANIMAL BREEDING</b>	405
Miryana Varbeva, Petya Kovacheva	<b>THE IMPACT OF RAPID WARMING ON THE BIOACCUMULATION OF RADIONUCLIDES AND THEIR TRANSFER WITHIN THE FOOD CHAIN</b>	406
Miryana Varbeva, Petya Kovacheva	<b>THE IMPACT OF SHARP TEMPERATURE SHIFT ON THE WATER-SOLUBLE FORMS OF TECHNOGENIC RADIONUCLIDES IN DIFFERENT SOIL TYPES</b>	407
Peter Bossew, Giorgia Cinelli, Miguel Hernandez, Tore Tollefsen, Marc De Cort	<b>GAMMA RADIATION FROM "RADON PEAKS" / ASSOCIATION WITH FACTORS RELATED TO GEOGENIC RADIATION SOURCES AND METEOROLOGY</b>	408
Peter Bossew, Giorgia Cinelli, Tore Tollefsen, Marc De Cort	<b>TOWARDS A EUROPEAN MAP OF TERRESTRIAL GAMMA RADIATION</b>	409
Jelena Ajtić, Vladimir Đurđević, Darko Sarvan, Erika Brattich, Miguel A. Hernández Ceballos	<b>BERYLLIUM-7 SPECIFIC ACTIVITY IN SURFACE AIR AND ITS CORRELATION WITH METEOROLOGICAL VARIABLES, SOLAR ZENITH ANGLE, AND NUMBER OF SUNSPOTS</b>	410
Jelena Ajtić, Vladimir Đurđević, Darko Sarvan, Erika Brattich, Miguel A. Hernández Ceballos	<b>ANALYSIS OF EXTREME BERYLLIUM-7 SPECIFIC ACTIVITIES IN SURFACE AIR</b>	411
Marina Konstantinova, Benedikta Benedikta Lukšienė, Nikolaj Tarasiuk, Evaldas Maceika	<b>ACCUMULATION OF CS ISOTOPES BY DIFFERENT ABOVE-GROUND-VEGETATION AFTER THE FUKUSHIMA DAIICHI NPP ACCIDENT</b>	412
Tatiana Paramonova, Vladimir Belyaev	<b>CS-137 VERSUS STABLE K IN ROOT UPTAKE FROM RADIOACTIVELY CONTAMINATED SOILS: FIELD OBSERVATIONS</b>	413
Alexander Jr. Dvornik, Cheshik Igor, Alexander Dvornik	<b>ASSESSMENT OF AIR POLLUTION BY <sup>137</sup>CS DURING FOREST FIRES</b>	414
Dmytro Ganzha, Christina Ganzha	<b>CHANGES IN FRACTAL DIMENSION OF <i>PHRAGMITES AUSTRALIS</i> LEAVES UNDER CHRONIC RADIATION EXPOSURE</b>	415



Galina Lavrentyeva, Regina Shoshina, Boris Synzynys	<b>APPLICATION OF ZONALITY CONCEPTUAL MODEL OF CHRONIC EFFECTS OF IONIZING RADIATION FOR STUDYING BEHAVIOR OF SR-90</b>	416
Tatyana Tugay, Andrei Tugay	<b>ADAPTATION OF HYPHOMYCETES TO CHRONIC IONIZING RADIATION</b>	417
Sukwon Choi, Daeji Kim, Jungsuk Chae	<b>THE BIOACCUMULATION FACTOR OF HEAVY METALS IN MARINE ORGANISMS FROM THE KOREAN COAST</b>	418
Marya Kropacheva, Mikhail Melgunov, Irina Makarova	<b>ISOTOPE CONTENTS AND TRANSFER FACTORS OF <sup>137</sup>CS AND <sup>90</sup>SR IN BIOGEOCENOSIS OF YENISEI RIVER FLOODPLAIN</b>	419
Serpil Aközcan, Mücahit Yılmaz, Fatih Külahcı	<b>DETERMINATIONS OF GAMMA EMITTING RADIONUCLIDES IN SOIL SAMPLES FROM THRACE REGION, TURKEY</b>	420
Andrius Puzas, Rasa Gvozdaitė, Rūta Druteikienė, Justina Šapolaitė, Vida Juzikienė, Vidmantas Remeikis	<b>PLUTONIUM ISOTOPIC RATIOS ANALYSIS IN ENVIRONMENTAL SOIL SAMPLES - A TECHNIQUE TO DETECT ARTIFICIAL NUCLEAR CONTAMINATION</b>	421
Mikhail Melgunov	<b>THE PROBLEM OF MOBILITY OF INDUCED RADIONUCLIDES IN CONTAMINATED ALLUVIAL SOILS OF THE YENISEI RIVER</b>	422
Sergey Karpenko	<b>RADIATION-EPIDEMIOLOGICAL STUDY OF THE INCIDENCE AND MORTALITY OF CARDIOVASCULAR DISEASE AMONG EMERGENCY WORKERS OF THE CHERNOBYL ACCIDENT</b>	423
Ljiljana Janković Mandić, Ranko Dragović, Sonja Pisanjuk, Snežana Dragović	<b>NATURAL RADIONUCLIDES IN THE SOIL OF SUBOTICA, SERBIA: THEIR DISTRIBUTION AND CORRESPONDING GAMA DOSE RATES</b>	424
Igor Gretsky, Tetiana Shylo	<b>THE USE OF LUMINOUS BACTERIA PHOTOBACTERIUM PHOSPHOREUM AS A BIOINDICATOR OF GEOMAGNETIC ACTIVITY</b>	425
Alla Oudalova, Stanislav Geras'kin, Svetlana Pyatkova, Nina Dikareva, Sergey Kiselev	<b>CYTO- AND GENOTOXICITY OF NATURAL WATERS IN THE VICINITY OF RADIOACTIVE WASTE STORAGE FACILITIES</b>	426
Małgorzata Jakubiak, Magdalena Rykaczewska, Romuald Stęborowski, Grażyna Bystrzejewska- Piotrowska, Monika Asztemborska	<b>ACCUMULATION OF CESIUM AND STRONTIUM BY MYCELIA OF <i>PLEUROTUS ERYNGII</i> IN THE PRESENCE OF ALUMINA NANOPARTICLES</b>	427
Sladana Meseldžija, Jelena Đorđević, Ljiljana Janković Mandić, Antonije Onjia	<b>POPULATION DOSES FROM TERRESTRIAL EXPOSURE IN THE VICINITY OF THE KOSTOLAC THERMAL POWER PLANT, SERBIA</b>	428
Dejan Joković, Nikola Veselinović, Radomir Banjanac, Dimitrije Maletić, Vladimir Udovičić, Mihailo Savić, Marija Keržlin, Slavša Stošić	<b>A STUDY ON NATURAL RADIOACTIVITY OF VARIOUS ENVIRONMENTAL SAMPLES FROM THE VICINITY OF THE OBRENOVAC POWER PLANT</b>	429

Liubov Zelena, Tatyana Tugay, Andrei Tugay	<b>GENETIC ANALYSIS OF <i>ASPERGILLUS VERSICOLOR</i> GROWING AT CHERNOBYL ZONE</b>	430
Tatyana Tugay, Viktor Zheltonozhsky, Marina Zheltonozhskaya, Andrey Tugay, Leinid Sadovnikov	<b>DECOMPOSING RADIOACTIVE HOT PARTICLES FOUND IN THE CHERNOBYL EXCLUSION ZONE BY MICROSCOPIC FUNGI <i>CLADOSPORIUM CLADOSPORIOIDES</i></b>	431
Dharmendra Kumar Gupta, Linda Hamann, Clemens Walther	<b>DOES NANOMOLAR PLUTONIUM CONCENTRATION GENERATE OXIDATIVE STRESS IN <i>SOLANUM TUBEROSUM</i> L. (POTATO) PLANTS?</b>	432
Alexander Bolsunovsky, Dmitry Dementyev, Tatiana Zotina, Mikhail Melgunov	<b>THE EFFECT OF RADIOACTIVE PARTICLES ON THE YENISEI RIVER ECOSYSTEM</b>	433
Miryana Varbeva, Petya Kovacheva	<b>THE INFLUENCE OF THE SOIL ORGANIC MATTER ON THE MIGRATION ABILITY OF TECHNOGENIC RADIONUCLIDES IN DIFFERENT SOIL TYPES UNDER A SHARP TEMPERATURE SHIFT</b>	434
Aleksander Egorkin, Aleksy Chasovskikh, Natalia Khamidullina, Dmitriy Zakharenko	<b>THE IMPROVEMENT OF FOOD SHELF LIFE WITH IONIZING IRRADIATION</b>	435
Dmitry Dementyev, Alexander Bolsunovsky, Roman Borisov, Sergey Kosinenko	<b>SPATIAL DISTRIBUTION OF RADIONUCLIDES AND HEAVY METALS IN BOTTOM SEDIMENTS OF THE YENISEI RIVER</b>	436
Mikhail Melgunov	<b>TO THE PROBLEM OF THE MOBILITY OF INDUCED RADIONUCLIDES IN CONTAMINATED ALLUVIAL SOILS OF THE YENISEI RIVER</b>	437
Natalia Shamal, Ekaterina Klementjeva, Sergei Gaponenko, Alexander Nikitin, Alexander Dvornik, Shuichi Okumoto, Shintani Masaki	<b>INFLUENCE OF MICROBIOLOGICAL PREPARATION EMI ON STATE OF <sup>137</sup>CS IN SOIL</b>	438
Lydia Bondareva	<b>THE ESTIMATION OF THE TOXICITY AND GENOTOXICITY OF WATER, SEDIMENTS AND SUBMERGED MACROPHYTE <i>ELODEA CANADENSIS</i> OF THE YENISEI RIVER IN THE PRESENCE OR ABSENCE OF AMERICIUM-241</b>	439
Pavel Sharagin, Elena Shishkina, Evgeny Pryakhin, Irina Popova, Denis Osipov	<b>THE CONCENTRATION RATIO OF <sup>137</sup>CS IN THE BODY OF A FISH FOUND IN THE TECHA RIVER IN COMPARISON WITH THE RESULTS OF OTHER WATER BODIES</b>	440
Ruslan Spirov, Raisa Korol, Alexander Nikitin	<b>THE SUBSTANCE OF TRANSURANIC ELEMENTS IN <i>CORYNEPHORUS CANESCENS</i> AND <i>YACCINIUM MYRTILLUS</i> GROWING IN THE POLESYE STATE RADIATION ECOLOGICAL RESERVE</b>	441

Ruslan Spirov, Raisa Korol, Alexander Nikitin	<b>THE SUBSTANCE OF TRANSURANIC ELEMENTS IN <i>BETULA PENDULA</i> GROWING IN THE POLESYE STATE RADIATION ECOLOGICAL RESERVE</b>	442
Ruslan Spirov, Raisa Korol, Alexander Nikitin	<b>THE SUBSTANCE OF TRANSURANIC ELEMENTS IN <i>PINUS SYL VESTRIS</i> GROWING IN THE POLESYE STATE RADIATION ECOLOGICAL RESERVE</b>	443
Jovana Nikolov, Tanja Petrović Pantić, Ines Krajcar Bronić, Nataša Todorović, Jadranka Barešić, Tamara Marković, Kristina Bikit, Milan Tomić, Ivana Stojković, Branislava Tenjović	<b>ISOTOPES <math>^3\text{H}</math>, <math>\delta^2\text{H}</math> AND <math>\delta^{18}\text{O}</math> IN GROUNDWATERS FROM VOJVODINA REGION</b>	444
Inacio Martin, Anatoly Gusev, Mauro Alves	<b>RADON PROGENY FALLOUT IN TROPICAL RAINFALLS</b>	445
Inacio Martin, Anatoly Gusev, Mauro Alves	<b>OBSERVATION OF RADON PROGENY NEUTRONS</b>	446
Miodrag Krmar, Dragan Radnovic, Minucer Mesaros, Jan Hansman, Zarko Medic	<b>SPATIAL DISTRIBUTION OF SOME RADIONUCLIDES IN MOSSES COLLECTED IN SERBIA</b>	447
Ljiljana Gulan, Biljana Milenković, Biljana Vučković, Gordana Milić	<b>MEASUREMENTS OF RADIOACTIVITY LEVELS IN THE SOIL SAMPLES FROM PRISTINA, KOSOVO AND METOHIJA, SERBIA</b>	448
Nedžad Gradasević, Davorin Samek, Nedim Mujic	<b>THE STUDY OF THE VERTICAL MIGRATION OF <math>^{137}\text{CS}</math> IN THE CHAIN SOIL-GRASS</b>	449
Yuriy Kutlakhmedov, Svitlana Pchelovska, Anastasia Salivon, Ludmila Tonkal	<b>ISSUES OF SYNERGY AND ANTAGONISM OF RADIATION AND CHEMICAL FACTORS</b>	450
Begy Robert-Csaba, Kelemen Szabolcs, Burghele Bety-Denissa	<b>THE INVESTIGATION OF THE SEDIMENTATION RATE IN CUIBIDA AND ISAC LAKES FROM THE DANUBE DELTA (ROMANIA) BY USING <math>^{210}\text{PB}</math> DATING METHODS</b>	451
Mirjana Cvijovic, Srboljub Stankovic, Brankica Tanovic	<b>VALIDATION METHOD FOR PESTICIDE RESIDUE AFTER GAMMA IRRADIATION</b>	452
Magdalena Dlugosz-Lisiecka	<b>UNUSUAL PO-210 AND PB-210 ACTIVITY RATIOS IN THE AIR</b>	453
Milan Tanić, Goran Bačić, Ljiljana Janković Mandić	<b>SPATIAL AND DEPTH DISTRIBUTION OF <math>^{137}\text{CS}</math> IN SOIL AROUND "NIKOLA TESLA A" COAL FIRED POWER PLANT, SERBIA</b>	454
Marija Janković, Dragana Todorović, Milica Rajačić, Nataša Sarap, Jelena Nikolić, Gordana Pantelić	<b>STUDY OF RADIOACTIVITY IN ENVIRONMENT AROUND POWER PLANTS TENT A AND KOLUBARA DUE TO COAL BURNING FOR 2015</b>	455

Milica Rajačić, Dragana Todorović, Jelena Krneta-Nikolić, Marija Janković, Gordana Pantelić, Nataša Sarap	<b>RADIONUCLIDE LOADING INDICES (RLI) FOR <sup>7</sup>BE AND <sup>210</sup>PB IN SERBIA IN 2015</b>	456
Robert-Csaba Begy, Edina Reizer, Alida Timar Gabor, Ferenc Forray	<b>DIFFERENT POTENTIAL SYSTEMATIC UNCERTAINTIES INVOLVED IN <sup>210</sup>PB DATING METHOD</b>	457
Ines Krajcar Bronić, Bogomil Obelić, Jadranka Barešić, Nada Horvatinčić, Damir Borković, Borut Breznik, Aleš Volčanšek, Andreja Sironić	<b>TEN YEARS OF MONITORING <sup>14</sup>C ACTIVITY IN ATMOSPHERIC CO<sub>2</sub> AND BIOLOGICAL SAMPLES AROUND THE KRŠKO NUCLEAR POWER PLANT, SLOVENIA</b>	458
Aleksandra Angeleska, Elizabeta Dimitrieska Stojkovik, Zehra Hajrulai-Musliu, Radmila Crceva Nikolovska, Biljana Dimzovska, Riste Uzunov	<b><sup>226</sup>RA, <sup>232</sup>TH AND <sup>40</sup>K IN WHEAT SAMPLES WITH THE ESTIMATION OF THE INDEX OF RADIATION RISK IN THE SURROUNDING OF THE CITY OF SKOPJE (R. MACEDONIA)</b>	459
Serpil Aközcan, Mehlike Beste Öztürk	<b>ENVIRONMENTAL RADIONUCLIDE DETERMINATION AND RADIOACTIVITY EVALUATION OF SEDIMENT SAMPLES COLLECTED ALONG THE BÜYÜK MENDERES RIVER, TURKEY</b>	460
Hanna Vasylyeva, Svyatoslav Vuchkan, Valeriy Yakovlev, Yuriy Kylivnyk	<b>THE INFLUENCE OF GAMMA IRRADIATION ON THE PROPERTIES OF THE SURFACE OF INORGANIC SORBENTS</b>	461
Olesya Symkanych, Sergiy Sukharev, Svetlana Delegan-Kokayko, Oleg Glukh	<b>THE DISTRIBUTION OF HEAVY METALS AND GAMMA-ACTIVE NUCLIDES IN NATURAL OBJECTS</b>	462
Anna Grodzinskaya, Sergey Syrchin, Vladimir Landin, Irina Dudka	<b>RADIOACTIVE CONTAMINATION OF UKRAINIAN WILD MUSHROOMS</b>	463

## 27 RADIOLOGY

Elisaveta Petrova	<b>THE SIGNIFICANCE OF LUNG HRCT FOR THE EARLY DIAGNOSIS OF PNEUMOCONIOSIS</b>	465
Mikhail Cherkashin, Alexey Serov, Natalia Berezina, Grigory Lyutyh, Denis Puchkov	<b>CENTRAL VENOUS PORT CATHETER SYSTEM IMPLANTATION NAVIGATED BY MULTISPIRAL CHEST COMPUTER TOMOGRAPHY</b>	466
Vladimir Kuplevatsky, Mikhail Cherkashin, Natalia Berezina, Nicolay Vorobyov, Alexey Mikhailov	<b>INDICATIONS FOR MRI-GUIDED PROSTATE BIOPSY</b>	467
Dragan Stojanov, Jelena Ignjatovic, Marija Dakovic Bjelakovic, Daniela Benedeto Stojanov, Miodrag Djordjevic, Nebojsa Ignjatovic	<b>LOCALISATION, DIFFUSION-WEIGHT IMAGING AND APPARENT DIFFUSION COEFFICIENT IN PREOPERATIVE ASSESSMENTS OF BRAIN ABSCESSSES</b>	468

Jelena Ignjatovic, Dragan Stojanov, Marija Dakovic Bjelakovic, Daniela Benedeto Stojanov, Miodrag Djordjevic, Nebojsa Ignjatovic	<b>APPARENT DIFFUSION COEFFICIENT (ADC) AND LOCALIZATION IN DETERMINING SUBTYPES OF MENINGIOMAS</b>	469
Marina Marković, Marina Petrović, Olga Petrović, Dragan Marković, Tomislav Nikolić, Vladimir Jurišić	<b>HOW MAY PET/CT REALLY HELP IN THE EVALUATION OF THE PRESENCE OF METASTASES: THE CASE OF LIVER METASTASES WHICH IS VISUALIZED ON THE BASIS OF CT BUT NOT ON THE BASIS OF PET/CT TECHNIQUES</b>	470
Dragana Nikolić, Vladimir Jurišić	<b>CT FOR THE MONITORING OF OSTEOARTHRITIS: A RARE LOCALIZATION OF THE SHOULDER OF A BOY AGED 12 YEARS</b>	471
Rastko Radović, Mirjana Perišić, Vladimir Jurišić	<b>ULTRASOUND TO MONITOR THE SIZE OF THE GALLBLADDER DURING MEALS</b>	472
Nikolay Sirakov, Irina Angelova, Athanas Todorov, Lubo Chervenkov, Vladimir Sirakov	<b>CASES OF ABSCESES OF THE STERNOCLEIDOMASTOID MUSCLE</b>	473

## 28 RADIOTHERAPY

Labinot Kastrati, Gazmend Nafezi, Gëzim Shehi	<b>THE PENUMBRA OF IRRADIATIONS IN LINEAR ACCELERATORS, ITS USE IN RADIOTHERAPY OF CANCER DISEASES, NEGATIVE EFFECTS, AND THE POSSIBILITIES OF REDUCING THEM</b>	475
Wojciech Bulski, Krzysztof Chelminski	<b>NATIONWIDE AUDIT OF SMALL FIELD OUTPUT CALCULATIONS IN POLAND</b>	476
Krzysztof Chelminski, Piotr Sobotka, Barbara Buczek, Ewelina Gruszczynska, Wojciech Bulski	<b>A PHANTOM FOR BRACHYTHERAPY TREATMENT PLANNING SYSTEM VERIFICATION WITH THE ARCCHECK® DEVICE</b>	477
Sergey Milyukov, Georgy Panshin, Natalia Kharchenko, Mikhail Kunda, Sergey Golub, Gadzhimurad Zapirov, Timur Izmailov	<b>INFLUENCE OF DIFFERENT RADIOTHERAPY PARAMETERS ON OVERALL DISEASE / SPECIFIC SURVIVAL IN PATIENTS WITH LOW-GRADE GLIOMAS</b>	478
Parvaneh Shokrani, Maryam Khorami	<b>AN INVESTIGATION OF DOSIMETRIC CHARACTERISTICS OF COMPOSITE SHIELDS FOR ELECTRON THERAPY: A MONTE CARLO STUDY</b>	479
Nicolay Vorobyov, Georgy Andreev, Anna Kalesnik, Andrey Lyubinsky	<b>EARLY RESULTS OF HYPOFRACTIONATION COMBINED WITH WHOLE PELVIC IRRADIATION FOR HIGH-RISK PROSTATE CANCER</b>	480
Mauro Valente, Rodolfo Figueroa	<b>CONVERAY®: A DEVICE FOR CONVERGENT BEAM RADIOTHERAPY</b>	481

Ioana Scarlatescu, Aurel Chis, Marius Spunei, Calin Avram	<b>DOSE DISTRIBUTION IN ARCCHECK UNDER THE INFLUENCE OF POSITIONING ERRORS</b>	482
Vladimir Klimanov, Alexey Moiseev, Maria Kolyvanova	<b>THE DOSE KERNELS FOR PENCIL BEAM AND DIFFERENTIAL PENCIL BEAM OF PHOTONS WITH THE SPECTRUM OF THE TREATMENT MACHINE WITH <sup>60</sup>CO SOURCE AND THEIR ANALYTICAL APPROXIMATIONS</b>	483
Tereza Hanušová, Simona Buryšková	<b>IMPACT OF CALIBRATION CURVE PRECISION ON RESULTS OF IMRT VERIFICATION WITH EBT<sub>3</sub> FILMS</b>	484

## 29 RADON AND THORON

Francesco Cardellini, Marco Capogni, Lina Quintieri	<b>THE ITALIAN THORON REFERENCE MEASUREMENT SYSTEM</b>	486
Martin Schläger, Khatam Murtazaev, Bakhtovar Rakhmatuloev, Petro Zoriy, Burkhard Heuel-Fabianek	<b>RADON EXHALATION OF THE URANIUM TAILINGS DUMP DIGMAI, TAJIKISTAN</b>	487
Mostafa Mostafa, Maxim Vasyanovich, Michael Zhukovsky	<b>PROTOTYPE OF RADON CONCENTRATION STANDARD WITH CLOSED SYSTEM</b>	488
Ana Sofia Silva, Maria de Lurdes Dinis, Alcides Pereira	<b>ASSESSMENT OF INDOOR RADON LEVELS IN PORTUGUESE THERMAL SPAS</b>	489
Vladimir Udovicic, Dimitrije Maletic, Maja Eremic Savkovic, Gordana Pantelic, Predrag Ujic, Igor Celikovic, Dragoslav Nikezic, Vladimir Markovic, Per Nilsson, Sofija Forkapic, Vesna Arsic, Jovana Ilic	<b>FIRST NATIONAL INDOOR RADON SURVEY IN SERBIA</b>	490
Petr Miklyaev, Tatiana Petrova, Albert Marennyy, Andrey Tsapalov, Sergey Kiselev	<b>EXPERIENCE IN MAPPING GEOGENIC RADON POTENTIAL IN RUSSIA</b>	491
Albert Marennyy, Petr Miklyaev, Andrey Tsapalov, Tatiana Petrova, Sergey Kiselev	<b>ASSESSMENT OF POTENTIAL RADON HAZARD OF BUILDING SITES IN RUSSIA</b>	492
Gazmend Nafezi, Labinot Kastrati, Gëzim Hodolli, Sehad Kadiri, Margarita Kuqali, Meleq Bahtijari	<b>RADON ACTIVITY CONCENTRATIONS IN UNDERGROUND WORKPLACES OTHER THAN MINES IN KOSOVO</b>	493
Judith Pena Dembo, Csaba Szabo, Zsuzsanna Szabo, Peter Volgyesi	<b>SEASONAL AND SPATIAL VARIATION OF RADON AND THORON IN ANGOLAN ADOBE HOUSES</b>	494
Caner Taşköprü, Mutlu Ichedef, Muslim Murat Sac	<b>DETERMINATION OF RADON CONCENTRATIONS AND DIFFUSION COEFFICIENTS IN SOILS OF THE KÜÇÜK MENDERES BASIN</b>	495
Murat Bölükbaş, M. Murat Saç, Caner Taşköprü	<b>DETERMINATION OF INDOOR RADON CONCENTRATION IN MANISA-SOMA MINE</b>	496

Vladimir Udovicic, Dimitrije Maletic, Radomir Banjanac, Dejan Jokovic, Gordan Nisevic, Vesna Manic, Goran Manic	<b>IN-FIELD INTERCOMPARISON INDOOR RADON MEASUREMENTS IN RADON-PRONE AREAS OF NISKA BANJA, SERBIA</b>	497
Ivana Stojković, Jovana Nikolov, Nataša Todorović	<b>PSA DISCRIMINATOR INFLUENCE ON <sup>222</sup>Rn EFFICIENCY DETECTION IN WATERS BY LIQUID SCINTILLATION COUNTING</b>	498
Martin Bulko, Karol Holý, Žofia Pohronská, Monika Müllerová	<b>ESTIMATION OF THE EFFECTIVE DOSE FROM NATURAL SOURCES IN THE VICINITY OF MOCHOVCE NUCLEAR POWER PLANT, SLOVAKIA</b>	499
Biljana Vuckovic, Ljiljana Gulan, Biljana Milenkovic, Jelena Stajic, Gordana Milic	<b>INDOOR RADON AND THORON CONCENTRATIONS IN SOME MUNICIPALITIES IN SOUTHERN PART OF SERBIA</b>	500
Mukesh Prasad, Peter Bossew, Rosaline Mishra, R.C. Ramola	<b>THE STUDY OF RADON, THORON, ATTACHED/UNATTACHED PROGENY, UNATTACHED FRACTIONS, EQUILIBRIUM FACTORS AND THE RADIATION DOSES IN THE INDOOR ENVIRONMENT OF GARHWAL HIMALAYA</b>	501
Janja Vaupotič, Ana Brodar	<b>EXPOSURE TO RADON AND NANO AEROSOL IN DWELLING OF HIGH RADON LEVEL</b>	502
Coretchi Liuba, Plavan Irina, Bahnael Ion, Virlan Serghei, Cojocari Alexandra, Streil Thomas	<b>CONTROL OF PUBLIC EXPOSURE TO RADON IN REPUBLIC OF MOLDOVA</b>	503
Leonid Chunikhin, Artur Chekhovskii, Denis Drozdov	<b>MAPPING RADON RISK ON TERRITORY OF REPUBLIC OF BELARUS</b>	504
Abd Elmoniem Ahmed Elzain	<b>DOSE ASSESSMENT OF INHALATION EXPOSURE TO INDOOR RADON IN SUDAN USING SSNTD<sub>5</sub></b>	505
Amela Kasić, Amira Kasumović, Feriz Adrović, Muhamed Hodžić	<b>RADON ACTIVITY CONCENTRATION IN DRINKING WATER IN TUZLA CITY, BOSNIA AND HERZEGOVINA</b>	506
Adriana Ion	<b>THE ESTIMATION OF ANNUAL EFFECTIVE DOSE FROM INDOOR RADON AND RADON CONCENTRATION MEASUREMENTS IN THE GEOLOGICAL INSTITUTE OFFICE BUILDING, BUCHAREST, ROMANIA</b>	507
Magdalena Długosz-Lisiecka, Jerzy Olszewski	<b>INTERCOMPARISON OF SELECTED MONITORS FOR Rn-222 ACTIVITY DETERMINATION IN THE AIR</b>	508

## 30 OTHER TOPICS

Paul Atta Amoah, Victus Horlu, Ernest Sarhene	<b>THERMAL CONDUCTIVITY OF REFRACTORY BRICK MATERIALS USING TRANSIENT HOT WIRE METHOD OF COMPARISON</b>	510
---	---	-----



## **MAPPING RADON RISK ON TERRITORY OF REPUBLIC OF BELARUS**

**Leonid Chunikhin<sup>1</sup>, Artur Chekhovskii<sup>2</sup>, Denis Drozdov<sup>2</sup>**

1 Gomel State Medical University, Gomel, Belarus

2 Gomel State University, Gomel, Belarus

The problem of natural radioactive gas radon, is an important problem of biology, ecology, and radiation medicine directly related to the population in many regions of the world. According to the report of UNSCEAR (1990), radon and its daughter products of decay is determined approximately 2/3 of the annual individual effective dose received by the population from terrestrial sources of radiation, and about half the dose from all sources of radiation. The most important factor is the dose-response effects of radon contained in indoor air, and the effects of  $\alpha$ -radiation on cells highly sensitive respiratory system and increases the risk of lung cancer (WHO, 2005). In ICRP Publication №115 noted that public exposure due to radon may account for up to 20% of the total number of lung cancer. In line with international practice risk assessment and radiation protection from radon mapping taken hold territory. For the mapping of radon risk using the results of studies conducted Joint Institute for Power and Nuclear Research (Minsk) for 2005-2014. They were examined 6 regions and Minsk. The uniformity of the initial placement of dosimeters meets European requirements: Box 10 by 10 km (Friedmann H., 2005). The number of measurements on areas: Brest – 178 measurements in 71 locality (L), Vitebsk – 372 in 90 L, Gomel – 960 in 48 L, Grodno – 900 in 101 L, Mogilev – 585 in 89 L, Minsk – 201 in 54 L, city Minsk – 398 Total: 3594 measurements in 454 L. Map shows 5 gradations of volume activity of radon: 0-40 Bq/m<sup>3</sup>, 40-70 Bq/m<sup>3</sup>, 70-100 Bq/m<sup>3</sup>, 100-200 Bq/m<sup>3</sup>, 200-400 Bq/m<sup>3</sup>. There is substantial heterogeneity in the distribution of radon in the territory of Belarus. In the southern and central regions (Brest, Gomel, southern districts of Minsk and Mogilev regions) have relatively low levels of radon in the room – up to 70 Bq/m<sup>3</sup>. In the northwest of Vitebsk, Mogilev and north west of the Grodno area averages 2-3 times higher. Use the map defined “radon spot” of the critical level of radon danger – radon concentration of 200-400 Bq/m<sup>3</sup> (Grodno, Shklov, Gorki, Rosson, Miory, Sharkovshchina, Glubokoye, Dokshitsy districts). It should be noted that the analysis of the radiological situation should include a contribution from natural radionuclides from Chernobyl contamination. This will allow to fully appreciate the existing radiation risks of possible radiation effects and, taking into account the low efficiency of countermeasures after the Chernobyl accident, to raise the level of radiation safety through antiradon events or changes in the approach to rationing of radiation.





[rad-conference.org](http://rad-conference.org)