



Sixth International Conference ISMART 2018 Engineering of Scintillation Materials and Radiation Technologies

9 - 12 October 2018

PROGRAM

9.10.2018

8.30.00-10.00 **Registration, Renaissance Minsk Hotel**, Second floor, in front of the Conference Room

Chairman: Grinyov B.

Plenary Session (Ball Room 1)

10.00-10.10 **Shumilin A.**, Opening of the Conference

10.10-10.20 **Korzhik M.**, Welcome from Chairman

10.20-10.30 **Grinyov B.**, Welcome from the International Organizing Committee

10.30-11.00 **Auffray E.**, *Invited talk*, CERN, Crystal Clear Collaboration an example of multidisciplinary work and international cooperation

11.00-11.30 Coffee Break and Registration

Plenary Session (Ball Room 1)

Physics of the materials for radiation detection-I

11.30-12.00 **Vasil'ev A.**, *Invited talk*, SINP MSU, Physics of fast processes in scintillators

12.00-12.30 **Gektin A.**, *Invited talk*, ISMA, Key trends in scintillation physics

12.30-13.00 **Tamulaitis G.**, *Invited talk*, Vilnius University, Transient Phenomena in Scintillation Materials. New Results

13.00-14.30 Lunch and Registration

Plenary Session (Ball Room 1)

Detectors for high energy physics

Chairman: Korzhik M.

14.30-15.00 **Iyudin A.**, *Invited talk*, SINP MSU, Application of scintillation detectors in cosmic experiments



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- 15.00-15.20 **Singovski A., *Invited talk***, Minnesota University, CMS ECAL detector Phase II upgrade
15.20-15.40 **Moritz M.**, Justus Liebig University, The Electromagnetic Calorimeter for the PANDA Target Spectrometer
15.40-16.00 **Gilewsky V., *Invited talk***, JIPNR-Sosny, Antineutrino detectors
16.00-16.20 **Kireyeu V., *Invited talk***, JINR, Project NICA

16.20-16.50 *Coffee Break and Registration*

Plenary Session (Ball Room 1)

Detectors and materials for radiation detection–I

Chairman: Vasil'ev A.

- 16.50-17.10 **Kornoukhov V**, FOMOS-Materials, Enriched $^{40}\text{Ca}^{100}\text{MoO}_4$ single crystalline material for search of neutrinoless double beta decay
17.10-17.30 **Zhmurin P.**, ISMA, Plastic scintillators with the improved radiation hardness level
17.30-17.50 **Rusiecka K.**, Jagellonian University, Investigation of the properties of the heavy scintillation fibers for hadron therapy monitoring
17.50-18.10 **Dimova T.**, Novosibirsk State University, Calibration and performance of the CMS electromagnetic calorimeter during the LHC Run-II
18.10-18.30 **Vasilyev M., Khabashesku V., Trat'siak Ya.**, Baker Hughes a GE Company, Nanoengineered $\text{Gd}_3\text{Al}_2\text{Ga}_3\text{O}_{12}$ scintillation materials with disordered garnet structure for novel detectors of ionizing radiation
18.30-18.50 **David E. L.**, Development of a submillimeter portable gamma-ray imaging detector, based on a GAGG:Ce-silicon photomultiplier array

14.00 *Opening of the industrial exhibition (Conference room 6)*

14.00-19.00 *Poster session – Technologies, materials and instrumentation (Conference room 5)*

1. **Gordienko E.**, NRC “Kurchatov Institute”, Scintillator powder and ceramics of multicomponent oxides with a garnet structure – problem of a composition control
2. **Dubovik A.**, ISMA, Growing and properties of $\text{Zn}_x\text{Mg}_{1-x}\text{WO}_4$ mixed crystals
3. **Galkin S.**, ISMA, ZnSe scintillators, growing technology and luminescent parameters
4. **Krech A.**, ISMA, Radiation hard composite scintillators
5. **Gorbachova T.**, ISMA, The impact of deep traps of structural origin on the optical and scintillation characteristics of organic scintillators
6. **Nepokypnaya T.**, ISMA, New composite detectors for medical x-ray diagnostics



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7. **Vashchenko L.**, ISMA, On new aspects of metrological activity at our institute with the entry into force of the new Law of Ukraine “On Metrology and Metrological Activity”
8. **Kuznetsova D.**, NRC “Kurchatov Institute”, YAG:Ce micro- and nanostructured powders – technological considerations
9. **Khoroshko L., Gaponenko N., Rudenko M., Sukalin K., Shaidakova K., Raichyonok T., Mudry A.**, BSUIR, Sol-gel derived nanostructured yttrium-aluminum garnets powders doped with lanthanides
10. **Khoroshko L., Baglov A.**, BSUIR, Radioluminescent nanostructured yttrium-aluminum perovskite doped with terbium embedded in porous anodic alumina matrix
11. **Gurdjian N.**, ISMA, Statistical estimation of quality of measurement of minimal detected activity of radionuclides by plastic scintillators for portal monitors
12. **Onyfriev Yu.**, ISMA, Scintillation elements for the CMS High Granularity Calorimeter
13. **Galenin E.**, ISMA, Low activated SrI₂:Eu detectors
14. **Makarevich K.**, INP BSU, “Fluence-to-dose” conversion coefficients for whole body irradiation geometry
15. **Afanasiev K.**, INP BSU, Measurement system for characterisation of new type GEM-detectors for MPD experiment at NICA
16. **Haurylavets V.**, INP BSU, The electromagnetic shower simulation in GEANT4 with taking into account crystalline structure of medium
17. **Orsich P.**, INP BSU, Longevity Evaluation of the PANDA EMC at FAIR
18. **Mechinsky V.**, INP BSU, Portable bench to evaluate coincidence time resolution of scintillation materials in temperature range
19. **Lazarev V.**, ISMA, An evidence of light yield anisotropy for a small p-torphenyl single crystal
20. **Grishin S.**, SSPA “Optics, Optoelectronics and Laser Technology”, Experimental investigation of on-board charged particles spectrometer and gamma-ray telescope detecting modules characteristics
21. **Grishin S.**, SSPA “Optics, Optoelectronics and Laser Technology”, Prototyping and experimental research of radiation detection modules
22. **Yamniy V.**, ADANI, Development of X-ray generator of 80 to 160 keV energy and 1.2 mA current
23. **Trat’siak Ya.**, IPCP BSU, Novel luminescent materials for wide applications
24. **Pokidov A.**, ISSP RAS, Improvement of light yield and spatial resolution in scintillation composites transformed to nanofibers
25. **Dybatovka D.**, ATOMTEX, Radiation control station comprising scintillation detection unit of spectrometric type
26. **Opolonin A.**, ISMA, Multi-energy radiography, physical principles, applications
27. **Kozlov D.**, INP BSU, Setup for characterization of scintillators to detect neutrons
28. **Tolkachev A.**, Stepanov Institute of Physics NANB, Scintillant florescence of cis-azoalkanes



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29. **Onufriyev Yu.**, ISMA, Radiation hard reflectors for scintillation modules for HEP
30. **Garankin Je.**, Center of Physical Science and Technology, BF-e using in ionizing radiation detection
31. **Vujčić I.**, University of Belgrade, Gamma radiation effects on structural and optical properties of Eu-doped $(Y_{0.7}Gd_{0.3})_2O_3$ scintillators
32. **Denisov D.**, GAMON - highly scalable modular gamma / neutron monitoring systems

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Industrial Exhibition (Conference room 6)

Plenary Session (Ball Room 1)

Materials production technologies–I

Chairman: Kornoukhov V.

- 9.00-9.30 **Dosovitskiy G.**, *Invited talk*, NRC “Kurchatov Institute”, Pure raw materials for scintillation detectors of ionizing radiation
- 9.30-9.50 **Cherginets V.**, ISMA, Obtaining and functional characteristics of Eu^{2+} -activated scintillation materials on the basis of congruent compounds of alkali and alkaline earth metal chlorides and bromides
- 9.50-10.10 **Sokolov P.**, *Invited talk*, NRC “Kurchatov Institute”, Towards new production technologies: 3D printing of scintillation materials
- 10.10-10.30 **Sidletskiy O.C.**, *Invited talk*, ISMA, Issues of carbon doping in garnet scintillators

10.30-11.10 Coffee Break and Registration

Materials production technologies–II

Chairman: Dosovitskiy G.

- 11.10-11.30 **Taranyuk V.**, ISMA, Novel approaches to produce scintillation materials
- 11.30-11.50 **Gerasymov Ia.**, ISMA, Progress in fabrication of long YAG-based scintillation fibers for HEP experiments
- 11.50-12.10 **Karpuk P.**, NRC “Kurchatov Institute”, Processing of scintillation ceramics based on complex oxides with garnet structure



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12.10-12.30 **Onyfriev Yu.**, ISMA, Radiation resistance of scintillators based on diamond micropowders

12.30-12.50 **Ilyin I.**, MERCK, Evaporation chemical by MERCK

12.50-14.30 Lunch

Instrumentation–I

Chairman: Iyudin A.

14.30-15.00 **Mazzi A.**, *Invited talk*, Fondazione Bruno Kessler, Performance of FBK silicon photomultipliers in fast timing applications

15.00-15.15 **Khodyuk I.**, CapeSym, ScintiClear based radiation detectors for high-precision gamma spectroscopy

15.15-15.45 **Uglov T.**, Lebedev Physical Institute, K-long and muon registration system of the Belle-II detector

15.45-16.00 **David E. L.**, University of West Attica, Evaluation of a small field of view personal gamma-spectrometer under ^{137}Cs irradiation conditions

16.00-16.15 **Lobko A.**, INP BSU, Specifics of 3D printed electronics

16.15-16.30 **Babin V.I.**, The Institute in Physical Technical Problems, The polymerizer with an air-convection method of heat transfer for plastic scintillators production. Advantages and technology features

16.30-17.00 Coffee Break

Neutron detection –I

Chairman: Gilewsky V.

17.00-17.20 **Fedorov A.**, INP BSU, Simulation and experimental study of GAGG:Ce detector of fast neutrons

17.20-17.35 **Dormenev V.**, Justus-Liebig-University, Response of different types of Gd based scintillation materials to Am-Be neutron source

17.35-17.50 **Yakimenko I.**, Kharkov National University, Detectors of fast neutrons, the mechanisms to register fast neutrons

17.50-18.05 **Kavrigyn P.**, CIVIDEC, Neutron cross section measurement with diamond detector

18.05-18.20 **Fiserova L.**, University of Defence, Thermal neutron detector based on LaOBr:Ce/LiF

18.20-18.35 **Opolonin A.**, ISMA, Multi-energy radiography, physical principles, applications



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18.35-18.50 **Kruglov V.**, JINR, Wide-aperture backscattering detector for the IBR-2 FDWR diffractometer

16.00-19.00 *Poster session – Technologies, materials and instrumentation-Continuation (Conference room 5)*

11.10.2018

Industrial Exhibition (Conference room 6)

Plenary Session (Ball Room 1)

Physics of the materials for radiation detection–II

Chairman: Tamulaitis G.

9.00-9.20 **Omelkov S.**, *Invited talk*, Insitute of Physics, University of Tartu, New properties and prospects for hot intraband luminescence

9.20-9.40 **Ogurtsov A.**, Kharkov National Technical University, Renormalization of atomic cryocrystals luminescence spectra stimulated by excitonically induced defect formation

9.40-10.00 **Ulyanenko A.**, *Invited talk*, Atomicus GmbH, Investigation of microstructure of irradiated multilayer ZrN/Si₃N₄ thin coatings revealed by X-ray diffraction techniques

10.00-10.20 **Nargelas S.**, Vilnius University, Transient absorption technique as a tool for characterization of scintillator timing properties

10.20-10.40 *Coffee Break*

Instrumentation–II

Chairman: Brinkmann K.-Th.

10.40-11.00 **Krainukovs I.**, Baltic Scientific Instruments, Application of LaBr₃(Ce) scintillation detectors in radition monitoring equipment

11.00-11.15 **Drobyshev G.**, ADANI, Development of the X-ray security screening systems at ADANI

11.15-11.30 **Baev V.**, INP BSU, Research complex for Mossbauer spectroscopy with a closed cycle cryostat for determining the local state of Fe atoms in iron-containing materials

11.30-11.45 **Sytova S.**, INP BSU, Information tool for support activities in supervision for nuclear and radiation safety



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Instrumentation–III

Chairman: Drobyshev G.

- 11.50-12.05 **Alekseichuk I.**, ATOMTEX, Enhancement of multifunctional AT1117M radiation monitor
- 12.05-12.20 **Komar D.**, ATOMTEX, LaBr₃(Ce)-based smart detection unit for investigation of capture gamma radiation field with energies from 30 keV to 10 MeV
- 12.20-12.35 **Lukashevich R.**, ATOMTEX, Application scintillation comparators for calibration low intense gamma radiation fields by dose rate in the range of 0.03 – 0.1 μSv/h
- 12.35-12.50 **Kozemyakin V.**, ATOMTEX, Gamma-radiation detection units and equipment for using as part of unmanned remotely operated radiation control systems
- 12.50-13.10 **Kazimirov A.**, The scintillatory detectors usage in spectrometric devices and systems for radiation and environmental monitoring

13.10-14.30 Lunch

Instrumentation–IV

Chairman: Gektin A.

- 14.30-14.45 **Slavashevich I.**, ADANI, Optimization of physical-topological parameters of two-energy X-ray detectors used in inspection and examination equipment
- 14.45-15.00 **Gorshkov D.**, ATOMTEX, Sample counter for gross alpha/beta activity measurements based on phoswich detector
- 15.00-15.15 **Lukashevich R.**, ATOMTEX, Generation of low-intensity X-ray radiation fields for investigation of energy dependence of high-sensitive radiation monitoring instruments based on scintillation detection units
- 15.15-15.30 **Yamniy V.**, ADANI, X-ray security screening system for introscopy of heavy vehicles
- 15.30-15.45 **Kudin A.**, National University of Civil Defence, Experimental manifestation of CsI:Na crystal hygroscopicity
- 15.45-16.05 **Mokrousov M.**, Space Research Institute, Prospective space based equipment on a base of LaBr₃ and CeBr₃ scintillators for exploration of the solar system planets

14.00-18.00 Training course for dosimetry of ionizing radiation at ATOMTEX facilities (Transportation Hotel –ATOMTEX and back)



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14.45-18.00 Excursion. Victory Museum

19.00-22.00 Conference Dinner

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Plenary Session (Ball Room 1)

Instrumentation–V

Chairman: Lobko A.

- 9.30-9.50 **Bredikhin I.**, Digital systems for multi-parameter analysis and data collection by CAEN
9.50-10.10 **Anfimov N.**, JINR, State of art for silicon photo-multipliers development
10.10-10.30 **Zhukouski A.**, ATOMTEX, Method for nuclides mix identification in analysis of gamma ray scintillation spectra
10.30-10.50 **Dyomin A.**, ISMA, Cluster ISMA-UA as an High Energy Physics Instrument
10.50-11.20 *Coffee break*
11.20-11.40 **Pedash V.**, ISMA, Characterization of position sensitive detectors with positioning algorithms trained by simulated reference data
11.40-12.00 **Verenich K.**, INP BSU, Control of organ and tissue doses to patients during Computed Tomography
12.00-12.10 **Korzhik M.**, Closing of the Conference