

Section 7 **METHODS, TECHNOLOGIES AND APPLICATIONS OF ARTIFICIAL INTELLIGENCE**

MAY 19, MONDAY

Morning session

Hall 2

Co-chairs: Sergey N. Lebedev,
Alexander I. Badekha

Presentations

- 7-1 14³⁰ **DISCONTINUITY COMPUTING
WITH PHYSICS-INFORMED NEURAL NETWORK**
 Li Liu, Shengping Liu, Heng Yong, Tengchao Yu
Institute of Applied Physics and Computational Mathematics, Beijing, China
- 7-16 14⁵⁵ **SAFETY AND SECURITY USING ARTIFICIAL INTELLIGENCE
TECHNOLOGIES. RESPONSE AND RISK MITIGATION**
Andrey M. Fedulin
JSC “KT – Drone Systems”, Saint-Petersburg, Russia
- 7-14 15¹⁵ **METHOD FOR DETERMINING OF JONES-WILKINS-LEE PARAMETERS
USING THE CYLINDER TEST RESULTS AND NEURAL NETWORK**
Yaroslav E. Starikov², M. A. Biryukova¹, N. L. Klinacheva², E. B. Smirnov^{1, 2},
S. V. Shakhmaev¹, O. A. Shershneva², E. S. Shestakovskaya², A. P. Yalovets²
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²South Ural State University (National Research University), Chelyabinsk, Russia
- 7-5 15³⁵ **ARTIFICIAL INTELLIGENCE IN THEORETICAL MATERIALS SCIENCE**
Vladimir V. Dremov
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 16⁰⁰ *Coffee-break*
- Co-chairs: Vyacheslav V. Fedorov,
Vitaly V. Vlasov
- 7-2 16³⁰ **PROSPECTS FOR IMPLEMENTING COMPUTER VISION, ROBOTS
AND DIGITAL TWINS IN NUCLEAR PHYSICS RESEARCH AT RFNC – VNIITF**
Sergey A. Andreev, N. A. Urusheva, S. Yu. Kasyanov, A. A. Okorokov, I. V. Pavlov,
D. V. Khmel'nitsky, V. V. Fedorov, S. I. Samarin, N. D. Dyrda, N. A. Teplykh
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 7-3 16⁵⁰ **UAV'S LANDING ON A MOVING PLATFORM**
Alexander I. Badekha
JSC «AIRBURG», Ekaterinburg
- 7-8 17¹⁰ **IMPLEMENTATION OF UAV'S GROUP APPLICATION USING ARTIFICIAL
INTELLIGENCE TECHNOLOGIES**
Danila A. Lisovsky
JSC “AIRBURG”, Ekaterinburg, Russia

- 7-17 17³⁰ **ON NEURAL NETWORK-BASED STRUCTURED GRID GENERATION
FOR NUMERICAL PDE SOLVERS**
Bari Khairullin, S. Rykovanov, R. Zagidullin
Skolkovo Institute of Science and Technology, Moscow, Russia
- 7-7 17⁵⁰ **ARTIFICIAL INTELLIGENCE TOOLS
FOR IMAGE RECONSTRUCTION IN LOW-DOSE X-RAY BREAST COMPUTED
TOMOGRAPHY**
Alexander B. Konovalov, V. V. Vlasov
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 7-9 18¹⁰ **GENERATION OF RADAR IMAGES USING GENERATIVE ADVERSARIAL
NETWORKS**
 Alexander S. Minaev, V. V. Fedorov
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
Snezhinsk Physics and Technology Institute, a branch of the Federal State Autonomous Educational
Institution of Higher Education “National Research Nuclear University MEPhI,” Snezhinsk, Russia

**Section 7P METHODS, TECHNOLOGIES AND APPLICATIONS
OF ARTIFICIAL INTELLIGENCE**

MAY 19, MONDAY 14³⁰ TO 18⁰⁰

MAY 20, TUESDAY 8⁴⁰ TO 13⁰⁰

Foyer

Posters

**7-11 SINGLE-LAYER NEURAL NETWORKS IN PROBLEMS OF APPROXIMATION
OF MULTIDIMENSIONAL FUNCTIONS AND SOLVING ELLIPTIC EQUATIONS**

Gennadii V. Orlov¹, E. I. Nesmiyanov^{1, 2}

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**7-6 NEURAL NETWORK APPROXIMATION OF A TABULATED EQUATION OF STATE
FOR SOLVING GAS DYNAMICS PROBLEMS**

Arina V. Ershova¹, E. I. Nesmiyanov^{1, 2}

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**7-10 NEURAL NETWORK APPROXIMATION OF THE TABULATED TIN PLASMA
AVERAGE CHARGE**

Elisey I. Nesmiyanov^{1, 2}, A. V. Ershova²

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**7-15 SOLVING THE TRANSPORT EQUATION USING SIGMOIDAL FUNCTION
APPROXIMATION**

Kirill A. Starodubets^{1, 2}, E. I. Nesmiyanov^{1, 3}

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7-12 NEURAL NETWORK ASSISTED EVALUATION OF A DEFINITE INTEGRAL

Olga A. Petukhova, A. V. Ershova

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**7-4 APPLICATION OF LSTM FOR APPROXIMATION OF FORCE CHARACTERISTICS
OF SPRINGS**

Vitaly V. Vlasov, A. R. Einbaum

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7-13 PARTICLE DETECTION IN HOLOGRAPHIC IMAGES USING NEURAL NETWORK

Dmitry S. Ponomarenko, M. V. Antipov, A. B. Georgievskaya, N. N. Ivaschenko, I. V. Oshkin,
A. V. Fedoseev, A. A. Tsibikov

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**7-18 INVESTIGATION OF THE EFFECT OF IONIZING RADIATION
ON THE CHARACTERISTICS OF RESISTIVE SWITCHING OF ZrO₂(Y₂O₃)-BASED
MEMRISTIVE DEVICES AS PART OF THE 1T1M CROSS-BAR ARRAY**

N. O. Bartev¹, V. A. Pikar¹, A. V. Teterevko¹, N. G. Danchenko¹, A. V. Silaev¹,
V. N. Leontyev¹, M. L. Smetanin¹, M. N. Koryazhkina², V. I. Lukoyanov², A. I. Belov²,
G. D. Zharkov², E. G. Gryaznov², A. A. Sushkov², D. A. Pavlov², A. N. Mikhaylov²

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