

Section 5 NUCLEAR AND HYDROGEN ENERGY

MAY 21, WEDNESDAY

Afternoon session

Hall 1

Co-chairs: Dmitry V. Khmel'nitskiy

Presentations

- 5-2 14³⁰ **NUCLEAR RESEARCH INSTALLATIONS AT RFNC – VNIITF: THE CURRENT STATE AND PROSPECTS FOR THEIR USE**
Sergey A. Andreev, A. V. Pavlenko, D. V. Khmel'nitskiy
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 5-3 14⁵⁰ **STATUS OF URAL CENTER FOR RADIATION HARDNESS TESTING**
Sergey A. Andreev, A. V. Pavlenko, O. V. Tkachev, N. M. Vagina, V. P. Shukaylo
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 5-10 15¹⁰ **MODELING OF STATIC PROCESSES IN THE IBR-2M REACTOR**
Yakov A. Vdovin
Joint Institute for Nuclear Research, Dubna, Russia
- 5-34 15³⁰ **AN EXPERIMENTAL STUDY OF FUEL ROD VIBRATIONS OF THE NEPTUNE REACTOR**
 Alexander E. Verhoglyadov
Joint Institute for Nuclear Research, Dubna, Russia
- 5-7 15⁵⁰ **TRANSMUTATION OF MINOR ACTINIDES IN A MOLTEN SALT REACTOR AS A WAY TO REDUCE THEIR RADIATION HAZARD**
Mikhail N. Belonogov, I. A. Volkov, N. D. Dyrda, D. G. Modestov, D. V. Khmel'nitskiy
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 16⁰⁵ *Coffee-break*
- Co-chairs: Andrey Yu. Shadrin
- 5-30 16³⁰ **FUEL CYCLE OF TWO-COMPONENT NUCLEAR POWER & SNF MANAGEMENT**
Andrey Yu. Shadrin
Private enterprise, «Science and Innovation», Moscow, Russia
- 5-17 16⁵⁰ **EXPERIMENTAL JUSTIFICATION OF PYROCHEMICAL TECHNOLOGY FOR REPROCESSING OF MIXED NITRIDE URANIUM-PLUTONIUM SPENT NUCLEAR FUEL**
Yury P. Zaikov, A. S. Kholkina, V. A. Kovrov, A. M. Potapov
Institute of High Temperature Electrochemistry of the Ural Branch of the Russian Academy of Sciences, Ekaterinburg, Russian Federation
- 5-22 17¹⁰ **SAFETY EVALUATION OF NON-REACTOR TECHNOLOGIES OF CLOSED NUCLEAR FUEL CYCLE: CHALLENGES AND CODE SYSTEM**
Inga R. Makeeva¹, N. D. Dyrda¹, I. V. Peshkichev¹, O. V. Shmidt²
¹FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
²Joint-stock company “Advanced Research Institute of Inorganic Materials named after Academician A. A. Bochvar”, Moscow, Russia

- 5-26 17³⁰ **AMERICIUM SEPARATION FROM OTHER MINORACTINIDES
FOR ITS RETURN TO THE FUEL CYCLE. THERMODYNAMIC SIMULATION**
Alexey M. Potapov, Yu. P. Zaikov
Institute of High Temperature Electrochemistry of the Ural Branch of the Russian Academy of
Sciences, Ekaterinburg, Russia
- 5-1 17⁴⁵ **SIMULATION OF MULTIPHASE SYSTEMS IN EXTRACTION PROCESSES
OF SNF REPROCESSING**
Ul'yana F. Altynnikova¹, A. A. Bochkareva¹, D. A. Mastjuk^{1,2}, D. F. Ganeeva¹,
E. E. Pigasov^{1,2}, I. R. Makeeva^{1,2}
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²FSAEI HE «South Ural State University (National Research University)», Chelyabinsk, Russia

Section 5 **NUCLEAR AND HYDROGEN ENERGY**

MAY 21, WEDNESDAY

Круглый стол

Hall 1

Co-chairs: Vadim A. Simonenko,
Vyacheslav P. Sokolov

Presentations

- 5-15 18⁰⁰ **THE FIRST STAGE OF THE USSR ATOMIC PROJECT
AND URANIUM ENRICHMENT IN THE URALS**
Sergey A. Gudin
M. N. Mikheev Institute of Metal Physics, Ural Branch of the Russian Academy of Sciences,
Yekaterinburg, Russia
- 5-24 18²⁰ **NATURAL URANIUM REACTORS WITH AN EXTERNAL SOURCE OF FAST
NEUTRONS ARE THE FUTURE OF ENERGY AND COSMONAUTICS**
Alexander G. Mozgovoy, I. N. Tilikin
P. N. Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russia
- 5-20 18⁴⁰ **RESULTS AND PROSPECTS OF USING COMBINED-ACTION PREPARATIONS
IN NUCLEAR POWER ENGINEERING AND MEDICINE**
 Alexander I. Ksenofontov¹, E. I. Kurbatova, D. A. Petrov^{1,2}
¹National Research Nuclear University «MEPhI», Moscow, Russia
²Leningrad Nuclear Power Plant, Sosnovy Bor, Russia

Section 5 NUCLEAR AND HYDROGEN ENERGY

MAY 22, THURSDAY

Morning session

Hall 1

Co-chairs: Inga R. Makeeva

Presentations

- 5-29 9⁰⁰ **HTGR-BASED NUCLEAR HYDROGEN TECHNOLOGIES**
Sergey A. Fateyev¹, V. V. Petrunin¹, N. N. Ponomarev-Stepnoy², I. V. Marov²
¹Afrikantov OKBM JSC, Nizhny Novgorod, Russia
²Rosenergoatom JSC, Moscow, Russia
- 5-6 9²⁰ **HYDROGEN RECOMBINERS TO ENSURE HYDROGEN SAFETY AT NPPS: ISSUES TO BE SOLVED**
Evgeny V. Bezgodov
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 5-19 9⁴⁰ **MODELING OF GAS MIXING PROCESSES IN THE PRESENCE OF NEAR-WALL CONDENSATION IN THE PROBLEMS OF HYDROGEN SAFETY ANALYSIS OF NPPS DURING SEVERE ACCIDENTS**
Anton A. Kanaev
Nuclear Safety Institute (IBRAE RAS), Moscow, Russia
- 5-13 10⁰⁰ **DEVELOPMENT OF THE CABARET-SC1 CFD CODE FOR HYDROGEN SAFETY PROBLEMS**
Vyacheslav Yu. Glotov
Nuclear Safety Institute of the RAS, Moscow, Russia
- 5-11 10²⁰ **STUDY OF THE PROPAGATION AND DECAY INTO SEPARATE CENTERS OF HYDROGEN-AIR FLAME IN A NARROW GAP**
Vladislav V. Volodin, P. S. Alechnovich, A. E. Elyanov, V. V. Golub
Joint Institute for High Temperatures, Russian Academy of Sciences, Moscow, Russia
- 5-28 10⁴⁰ **EXPERIMENTAL DATA OF HYDROGEN JET FLAME LENGTH AT THE LEAKAGE FROM HIGH-PRESSURE VESSEL**
Vyacheslav V. Stakhanov, D. A. Mastjuk, E. V. Bezgodov, M. V. Nikiforov, S. D. Pasyukov, A. A. Tarakanov, I. A. Popov, Yu. F. Davletchin
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 10⁵⁵ *Coffee-break*

Co-chairs: Viktor V. Golub

- 5-14 11¹⁵ **EFFECT OF HYDROGEN TEMPERATURE ON IGNITION POSSIBILITY DURING SUDDEN RELEASE INTO AN AIR-FILLED CHANNEL**
Viktor V. Golub¹, V. M. Anisimov¹, V. M. Bocharnikov¹, V. V. Volodin¹, S. V. Golovastov¹, A. E. Elyanov¹, V. A. Simonenko², V. V. Stakhanov²
¹Joint Institute for High Temperatures of the Russian Academy of Sciences, Moscow, Russia
²FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia

- 5-8 11³⁵ **SIMULATION OF DETONATION INSTABILITIES
IN HYDROGEN-AIR MIXTURES**
Pavel E. Belyaev¹, I. R. Makeyeva^{1,2}, D. A. Mastjuk¹,
E. E. Pigasov^{1,2}, T. A. Kupriyanets¹
¹FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
²South Ural State University (National Research University), Chelyabinsk, Russia
- 5-18 11⁵⁵ **EXPERIMENTAL STUDY OF FINE PARTICLES IMPACT
ON FLAME PROPAGATION BEHAVIOR
IN HYDROGEN-CONTAINING COMPOSITIONS**
Matvey E. Ignatyuk, E. S. Morozov, P. V. Promyslov, Yu. A. Piskunov, A. A. Tyaktev,
N. B. Anikin, I. L. Bugaenko
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 5-33 12¹⁵ **EXPERIMENTAL STUDIES OF STRATIFICATION AND COMBUSTION OF
STRATIFIED HYDROGEN-AIR MIXTURES IN A VERTICAL CLOSED CHANNEL**
Savva A. Yakovlev, V. V. Stakhanov, E. V. Bezgodov, A. A. Tarakanov, S. D. Pasyukov,
M. V. Nikiforov, I. A. Popov
FSUE «RFNC—VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russian Federation
- 5-23 12³⁰ **CFD SIMULATION METHOD FOR ASSESSMENT OF THE EFFECT
OF LARGE-SCALE ACCIDENTS ON HYDROGEN PRODUCTION FACILITIES**
Dmitry A. Mastjuk^{1,2}, E. V. Bezgodov¹, D. F. Ganeeva¹,
K. S. Kutuzova¹, Y. A. Tomilov^{1,3}
¹FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
²FSAEI HE «South – Ural state-run university (NRU)», Chelyabinsk, Russia
³FSAE HE «Snezhinsk Physics and Technology Institute», Snezhinsk, Russia
- 5-25 12⁴⁵ **FROM THE ABBN-93 PROJECT LIBRARY TO THE UNIFIED SYSTEM
OF REACTOR CONSTANTS ABBN-RF22 FOR THE CALCULATION
FOR FAST REACTOR CALCULATIONS**
 Darya V. Panova, S. V. Zabrodskaya, G. N. Manturov, A. A. Peregudov,
M. Y. Semenov, M. N. Slyunyayev
Joint Stock Company “State Scientific Center of the Russian Federation – A.I. Leipunsky Institute of
Physics and Power Engineering”, Obninsk, Russia
- 13⁰⁰ *Lunch*

Section 5P NUCLEAR AND HYDROGEN ENERGY

MAY 21, WEDNESDAY C 14³⁰ ДО 18⁰⁰
MAY 22, THURSDAY C 8⁴⁰ ДО 13⁰⁰

Foyer

Posters

- 5-12 **MODELING AND EVALUATION OF THE CONSEQUENCES OF THE EXPLOSION OF A HYDROGEN-AIR CLOUD IN THE ELECTROLYSIS PRODUCTION OF HYDROGEN USING SC KEDR**
Dilyara F. Ganeeva¹, D. A. Mastjuk^{1, 2}, E. V. Bezgodov¹
¹FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
²FSAEI HE «South – Ural state-run university (NRU)», Chelyabinsk, Russia
- 5-32 **VALIDATION OF THE ATEC-HE SOFTWARE IN TERMS OF MODELING FIRE-JET AND FIREBALL**
Mariya A. Yumatova, Zh. S. Bogdanova, O. V. Shults
RFNC – VNIITF named after academ. E. I. Zababakhin, Snezhinsk, Russia
- 5-27 **ELECTRICAL CONDUCTIVITY AND DENSITY OF MOLTEN SALTS AT ELEVATED TEMPERATURES AND VAPOR PRESSURES**
Alexey M. Potapov, A. B. Salyulev
Institute of High Temperature Electrochemistry of the Ural Branch of the Russian Academy of Sciences, Ekaterinburg, Russia
- 5-16 **TESTING OF ROSFOND-2020.2 NUCLEAR DATA FOR USE IN PRACTICAL CALCULATIONS**
Georgy O. Egorov, S. V. Zabrodskaya, G. N. Manturov, M. N. Slyunyaev, K. V. Tykleeva
A. I. Leypunsky Institute for Physics and Power Engineering, Obninsk, Russia
- 5-9 **WIDENING THE RANGE OF APPLICABILITY OF PHOTON RADIATION DETECTORS FOR HIGH-DOSE MEASUREMENTS USING EPR DOSIMETRY METHODS**
Mariya G. Berezovskaya, O. V. Tkachev, M. S. Ivanova, A. A. Konovalov, I. D. Prikhodko, A. I. Batin, A. G. Berezovsky
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 5-31 **IR VISUALIZATION OF GAS MIXTURE BURNING TO STUDY HYDROGEN SAFETY AND POWER ISSUES**
Il'dar K. Sharapov, A. S. Borozenets, A. A. Ryakin, A. V. Ushkov
RFNC – VNIITF named after academ. E. I. Zababakhin, Snezhinsk, Russia
- 5-21 **RESULTS OF EXPERIMENTS WITH HYDROGEN LEAKAGE INTO A LIMITED ROOM WITH DELAYED IGNITION**
Kseniya S. Kutuzova, E. V. Bezgodov, V. V. Stahanov, I. A. Popov, S. D. Pasyukov
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 5-4 **ADIABATIC CALORIMETRY METHODS FOR ASSESSING THE STABILITY OF ORGANIC SUBSTANCES**
Marat F. Akhmetov
Branch of Melytec LLC, Yekaterinburg, Russia