

## Conference Agenda

### May 27 (Monday)

Arrival of the participants, accommodation and registration

### May 28 (Tuesday)

8.00–9.00 Registration

9.00–9.30 Opening of the conference (great hall of the Slavsky Conference Center)

9.30–12.00 Plenary papers. Session #1 (great hall of the Slavsky Conference Center)

*12.00–13.30 Lunch*

13.30–15.30 Plenary papers. Session #2 (great hall of the Slavsky Conference Center)

*15.30–15.50 Coffee break*

15.50–17.20 Plenary papers. Session #3 (great hall of the Slavsky Conference Center)

### May 29 (Wednesday)

8.00–9.40 Section 1 Session #1 (small hall of the Slavsky Conference Center)

8.00–9.40 Section 2 Session #1 (great hall of the Slavsky Conference Center)

*9.40–10.00 Coffee break*

10.00–12.00 Section 1 Session #2 (small hall of the Slavsky Conference Center)

10.00–12.00 Section 2 Session #2 (great hall of the Slavsky Conference Center)

*12.00–13.30 Lunch*

13.30–15.30 Section 1 Session #3 (small hall of the Slavsky Conference Center)

13.30–15.30 Section 2 Session #3 (great hall of the Slavsky Conference Center)

*15.30–15.50 Coffee break*

15.50–17.10 Section 1 Session #4 (small hall of the Slavsky Conference Center)

15.50–17.30 Section 2 Session #4 (great hall of the Slavsky Conference Center)

### May 30 (Thursday)

8.00–9.40 Section 1 Session #5 (small hall of the Slavsky Conference Center)

8.00–9.40 Section 2 Session #5 (great hall of the Slavsky Conference Center)

*9.40–10.00 Coffee break*

10.00–12.00 Section 1 Session #6 (small hall of the Slavsky Conference Center)

10.00–12.00 Section 2 Session #6 (great hall of the Slavsky Conference Center)

*12.00–13.30 Lunch*

13.30–15.30 Section 1 Session #7 (small hall of the Slavsky Conference Center)

13.30–15.10 Section 3 Session #1 (great hall of the Slavsky Conference Center)

*15.30–15.50 Coffee break*

15.30–17.00 Poster section (flow area on the 2<sup>nd</sup> floor of the Slavsky Conference Center)

17.00–17.30 Close of conference

*18.00 Welcome dinner*

### May 31 (Friday)

10.00–13.00 Technical tour

*13.00–14.30 Lunch*

Departure

XI Conference on Reactor Materials Science  
dedicated to the 55<sup>th</sup> anniversary of the RIAR's Reactor Materials Testing Complex

**TUESDAY, 28 MAY 2019**

**Plenary session #1** (great hall of the Slavsky Conference Center), **9.00–12.00**

**Chairs:** A.A. Tuzov, A.L. Izhutov, E.A. Zvir (JSC “SSC RIAR”)

	Opening ceremony <u>A.A. Tuzov</u> , <u>A.L. Izhutov</u> (JSC “SSC RIAR”)	9.00–9.30
1	Key Results of Post-Irradiation Examinations Performed at JSC “SSC RIAR” in 2014–2018 <u>E.A. Zvir</u> , V.A. Zhitelev, A.V. Zakharov, F.N. Kryukov, V.Yu. Shishin (JSC “SSC RIAR”)	9.30–10.00
2	Development of New Materials and Challenges of Reactor Materials Science <u>A.V. Dub</u> (JSC “Science&Innovations”, ROSATOM)	10.00–10.30
3	The Expectations of The Fuel Vendor in The Field of Reactor Material Science of Nuclear Fuel. The Results of The Cooperation and Material Science Aspects of Future Research in The Midterm Perspective <u>A.V. Ugryumov</u> (JSC “TVEL”)	10.30–11.00
4	Corrosion behavior of fuel rod claddings of the VVER <u>V.V. Novikov</u> , V.F. Konkov (JSC “VNIINM”)	11.00–11.30
5	Analysis of The Directions to Create an Accident Tolerant Fuel <u>B.A. Kalin</u> , A.V. Tenishev, A.A. Polyansky (National Research Nuclear University “MEPhI”)	11.30–12.00
<b>12.00–13.30 Lunch</b>		

**Plenary Session #2** (great hall of the Slavsky Conference Center), **13.30–15.30**

**Chair:** A.V. Ugryumov (JSC “TVEL”), E.A. Zvir (JSC “SSC RIAR”)

6	Development of a new swelling position for PWR austenitic internals, reflecting much lower swelling compared to higher temperature fast reactor experience <u>Frank Garner</u> (Moscow Engineering Physics Institute, Department of Materials Science, USA)	13.30–14.00
7	The damage and fracture mechanisms of austenitic steels in the irradiated conditions typical for nuclear reactors of various types B.Z. Margolin, <u>A.A. Sorokin</u> , A.A. Buchatsky, V.A. Shvetsova, A.I. Minkin, N.E. Pirogova (NRC “Kurchatov Institute” – CRISM “Prometey”)	14.00–14.30
8	Current status and plans for substantiation of mixed nitride fuel for fast neutron reactors <u>M.V. Skupov</u> (JSC “VNIINM”), L.M. Zabudko (ITCP “Proryv”)	14.30–15.00
9	Comparative Analysis of Post-Irradiation Examination Results of Mixed Nitride Fuel Irradiated in BOR-60 and BN-600 Reactors: Influence of Irradiation Parameters on Fuel Life Limiting Factors A.F. Grachev <sup>1</sup> , <u>L.M. Zabudko</u> <sup>1</sup> , F.N. Kryukov <sup>2</sup> , S.I. Porollo <sup>3</sup> , M.V. Skupov <sup>4</sup> ( <sup>1</sup> ITCP “Proryv”, <sup>2</sup> JSC “SSC RIAR”, <sup>3</sup> JSC “SSC RF-IPPE”, <sup>4</sup> JSC “VNIINM”)	15.00–15.30
<b>15.30–15.50 Coffee break</b>		

**Plenary Session #3** (great hall of the Slavsky Conference Center), **15.50–17.20**

**Chair:** A.V. Dub (JSC “Science & Innovations”)

10	Phase transformations in irradiated 42CrNiMo alloy after anneals at elevated temperatures, and also after rapid annealing, simulating the maximum design basis accident <u>B.A. Gurovich</u> <sup>1</sup> , A.S. Frolov <sup>1</sup> , D.A. Maltsev <sup>1</sup> , E.A. Kuleshova <sup>1,2</sup> , S.V. Fedotova <sup>1</sup>	15.50–16.20
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	( <sup>1</sup> NRRC "Kurchatov institute", <sup>2</sup> NRNU "MEPhI")	
11	Main properties of the Ni-Cr alloy 42KhNM and the prospects of its implementation as a construction material of VVER elements <b>G.V. Kulakov</b> , S.A. Ershov, Yu.V. Konovalov, M.V. Leontyeva-Smirnova, V.N. Rechitsky, M.V. Skupov, V.V. Fedotov (JSC "VNIINM", JSC "SSC RIAR")	16.20–16.50
12	Upgrading of Reactor Cores for Nuclear Icebreakers Based on Operational Experience and PIE O.B. Samoylov, <b>O.A. Morozov</b> , A.N. Lepekhin, V.Yu. Silayev, A.A. Zakharychev, V.V. Vasilyev (JSC "Afrikantov OKBM")	16.50–17.20

**WEDNESDAY, 29 MAY 2019**

**Section 1: Power reactor fuel and fuel elements, Session #1**  
(small hall of the Slavsky Conference Center), **8.00–9.40**  
**Chair:** V.V. Novikov (JSC "VNIINM")

1	E110M alloy fuel rod claddings in-reactor tests in water-cooled reactors and post-irradiation examination results A.Yu. Shevyakov, <b>V.A. Markelov</b> , V.V. Novikov, N.S. Saburov, A.Yu. Gusev, V.F. Konkov, M.M. Peregud (JSC "VNIINM")	8.00–8.20
2	Comparative analysis of the state of E110 and E110 OPT. fuel rod claddings spent up to 49,6–63,7 MW·day/kg U <b>A.V. Strozhuik</b> , V.A. Zhitelev, I.N. Volkova, Yu.D. Goncharenko, A.S. Khrenov, G.V. Shevlyakov, A.A. Bokov (JSC "SSC RIAR")	8.20–8.40
3	Research of high-temperature oxidation behavior of E110 OPT. and E110M sponge based zirconium alloys <b>A.G. Malgin</b> <sup>1</sup> , V.A. Markelov <sup>1</sup> , V.V. Novikov <sup>1</sup> , I.A. Shelepov <sup>1</sup> , V.E. Donnikov <sup>2</sup> , V.I. Latunin <sup>2</sup> ( <sup>1</sup> JSC "VNIINM", <sup>2</sup> JSC "VTI")	8.40–9.00
4	High temperature oxidation of the alloy E110 with coatings based on FeCrNi and CrNi alloys <b>A.S. Yashin</b> <sup>1</sup> , B.A. Kalin <sup>1</sup> , N.V. Volkov <sup>1</sup> , D.A. Safonov <sup>1</sup> , P.S. Dzhumayev <sup>1</sup> , V.V. Novikov <sup>2</sup> , V.I. Kuznetsov <sup>2</sup> , P.V. Fedotov <sup>2</sup> , A.A. Mokrushin <sup>3</sup> , K.A. Polunin <sup>3</sup> ( <sup>1</sup> NRNU "MEPhI", <sup>2</sup> JSC "VNIINM", <sup>3</sup> FSUE "SRI SIA "Luch")	9.00–9.20
5	Modelling the effects of nuclear transmutation in the study of the physical properties of zirconium alloys <b>A.R. Belozeroва</b> , S.V. Belozerov, V.K. Shamardin, G.P. Kobylansky (JSC "SSC RIAR")	9.20–9.40
<b>9.40–10.00 Coffee break</b>		

**Section 1: Power reactor fuel and fuel elements, Session #2**  
(small hall of the Slavsky Conference Center), **10.00–12.00**  
**Chair:** D.V. Markov (JSC "SRC RF TRINITY")

1	Modelling of the elongation of UO <sub>2</sub> -Gd <sub>2</sub> O <sub>3</sub> fuel rods of VVER-1000 V.V. Novikov, V.I. Kuznetsov, B.I. Nesterov, <b>P.G. Demyanov</b> , A.S. Eremenko (JSC "VNIINM")	10.00–10.20
2	In-pile creep of uranium-gadolinium oxide fuel of the type (U <sub>0.927</sub> Gd <sub>0.073</sub> )O <sub>2-x</sub> at a temperature of 550–900 °C <b>A.V. Fedotov</b> <sup>1</sup> , E.N. Mikheev <sup>1</sup> , N.M. Rysev <sup>1</sup> , V.V. Novikov <sup>1</sup> , O.A. Bakhteev <sup>1</sup> , N.A. Degtyarev <sup>1</sup> , V.B. Malygin <sup>2</sup> , R.A. Panasenko <sup>2</sup> , E.G. Belendryasova <sup>2</sup> , A.L. Izhutov <sup>3</sup> , A.V. Burukin <sup>3</sup> , S.V. Seredkin <sup>3</sup> , G.A. Ilyinykh <sup>3</sup> , I.N. Volkova <sup>3</sup>	10.20–10.40

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	( <sup>1</sup> JSC “VNIINM”, <sup>2</sup> NRNU “MEPhI”, <sup>3</sup> JSC “SSC RIAR”)	
3	Interim examinations of experimental fuel rods tested in the MIR reactor under PWR conditions A.L. Izhutov, A.V. Burukin, O.N. Vladimirova, <b>A.I. Dolgov</b> , P.A. Ilyin, V.V. Kalygin, M.A. Mokeichev, V.A. Ovchinnikov (JSC “SSC RIAR”)	10.40–11.00
4	Study of the behavior of VVER-1000 fuel rods in support of power ramp regimes V. V. Novikov, V. I. Kuznetsov, <b>B. I. Nesterov</b> (JSC “VNIINM”) A.L. Izhutov, A.G. Eshcherkin, V.A. Ovchinnikov (JSC “SSC RIAR”)	11.00–11.20
5	Studying of the VVER-1000 fuel rods behaviour under the loss-of-coolant-accident (LOCA) conditions: in-pile MIR-LOCA/45 and MIR-LOCA/69 tests A.V. Alekseev <sup>1</sup> , <b>A.V. Goryachev</b> <sup>1</sup> , O.I. Dreganov <sup>1</sup> , A.L.Izhutov <sup>1</sup> , L.V. Kireeva <sup>1</sup> , I.V. Kiseleva <sup>1</sup> , V.N. Shulimov <sup>1</sup> , V.I. Kuznetsov <sup>2</sup> , V.V. Novikov <sup>2</sup> , A.V. Salatov <sup>2</sup> , P.V. Fedotov <sup>2</sup> ( <sup>1</sup> JSC “SSC RIAR”, <sup>2</sup> JSC “VNIINM”)	11.20–11.40
6	Study of stained shells of the fuels of reactor type PWR with protective coating in conditions characteristic for an accident with heat carrier loss <b>A.A. Urusov</b> , A.A. Mokrushin, D.M. Soldatkin, K.K. Polunin (FSUE “SRI SIA “Luch”)	11.40–12.00
<b>12.00–13.30 Lunch</b>		

**Section 1: Power reactor fuel and fuel elements, Session #3**  
(small hall of the Slavsky Conference Center), **13.30–15.30**  
**Chair: G.P. Kobylansky (JSC “SSC RIAR”)**

1	Main efforts and plans for modernization of the nuclear fuel structure and materials for WWER RP <b>S.A. Kushmanov</b> (JSC OKB “GIDROPRESS”)	13.30–13.50
2	Changes in the geometry of VVER-1000 TVS-2 and TVS-2M and their components under operation <b>G.V. Shevlyakov</b> , A.V. Strozhuik, O.G. Sidorenko, S.S. Sagalov, A.S. Khrenov, A.A. Bokov (JSC “SSC RIAR”)	13.50–14.10
3	Development and application of techniques for evaluation of coolant activity during operation of VVER power units <b>P.M. Kalinichev</b> , I.A. Evdokimov, V.V. Likhanskii, E.Yu. Afanasyeva, A.G. Khromov (JSC “SRC RF TRINITI”)	14.10–14.30
4	Integrity testing of the TVSA-Alfa fuel elements by gamma-spectrometry of the gas plenum <b>S.S. Sagalov</b> , V.A. Zhitelev, G.V. Shevlyakov, A.V. Strozhuik, V.G. Teplov, E.G. Iliyina (JSC “SSC RIAR”)	14.30–14.50
5	Effect of neutron irradiation in the VVER-1000 reactor on the characteristics of secondary phases in zirconium alloys E110 and E635 <b>A.V. Obukhov</b> , G.P. Kobylansky, S.S. Sagalov, A.R. Belozerova (JSC “SSC RIAR”)	14.50–15.10
6	Engineering-economic analysis of the use of accident tolerant fuel in nuclear power engineering <b>V.V. Kharitonov</b> , B.A. Kalin, A.N. Silenko, Yu.A. Ul'yanin (National Research Nuclear University “MEPhI”)	15.10–15.30
<b>15.30–15.50 Coffee break</b>		

**Section 1: Power reactor fuel and fuel elements, Session #4**  
(small hall of the Slavsky Conference Center), **15.50–17.10**  
**Chair: V.A. Markelov (JSC “VNIINM”)**

1	Analysis of VVER-1000 fuel rods elongation under thermal tests simulating dry storage conditions <b>G.P. Kobylvansky</b> , A.O. Mazaev, E.A. Zvir, P.A. Ilyin, A.V. Obukhov (JSC “SSC RIAR”)	15.50–16.10
2	Modeling of fuel claddings mechanical properties under dry storage conditions <b>T.N. Aliev</b> <sup>1</sup> , V.V. Likhanskii <sup>1</sup> , M.Yu. Kolesnik <sup>1</sup> , O.V. Khoruzhiy <sup>1</sup> , V.G. Zborovskiy <sup>1</sup> , I.A. Evdokimov <sup>1</sup> , A.A. Sorokin <sup>1</sup> , K.E. Ulybyshev <sup>1</sup> , B.A. Gurovich <sup>2</sup> , O.O. Zabusov <sup>2</sup> , D.A. Zhurko <sup>2</sup> , A.S. Frolov <sup>2</sup> , E.A. Zvir <sup>3</sup> , P.A. Ilyin <sup>3</sup> ( <sup>1</sup> JSC “SRC RF TRINITI”, <sup>2</sup> NRC “Kurchatov Institute”, <sup>3</sup> JSC “SSC RIAR”)	16.10–16.30
3	Phase and structural transformations in the fuel cladding rods from E110 alloy in the conditions of “dry” storage <b>A.S. Frolov</b> <sup>1</sup> , B.A. Gurovich <sup>1</sup> , E.A. Kuleshova <sup>1,2</sup> , D.A. Maltsev <sup>1</sup> , D.V. Safonov <sup>1</sup> , E.V. Alekseeva <sup>1</sup> ( <sup>1</sup> NRC “Kurchatov Institute”, <sup>2</sup> NRNU “MEPhI”)	16.30–16.50
4	Determination of delayed hydride cracking parameters to assess the probability of their depressurization during operation and dry storage <b>N.S. Saburov</b> , V.A. Markelov, S.A. Bekrenev, I.A. Shelepov, A.Yu. Gusev, I.M. Goncharov (JSC “VNIINM”)	16.50–17.10

**Section 2: Structural materials for nuclear and fusion reactors, Session #1**  
(great hall of the Slavsky Conference Center), **8.00–9.40**  
**Chair: B.A. Gurovich (NRC “Kurchatov Institute”)**

1	Structural materials for fast neutron reactors with sodium and lead coolants <b>M.V. Leontveva-Smirnova</b> , M.V. Skupov, A.A. Nikitina, I.A. Naumenko, N.M. Mitrofanova (JSC “VNIINM”)	8.00–8.20
2	Role of JSC OKB “GIDROPRESS”, JSC “SSC RIAR” and CRISM “Prometey” in international project TACIS 2002 (R2/01.02) <b>V.M. Komolov</b> <sup>1</sup> , V.V. Evdokimenko <sup>1</sup> , V.A. Piminov <sup>1</sup> , I.O. Tregubov <sup>1</sup> , V.I. Tsofin <sup>1</sup> , B.Z. Margolin <sup>2</sup> , A.A. Sorokin <sup>2</sup> , A.I. Minkin <sup>2</sup> , I.Yu. Zhemkov <sup>3</sup> , V.S. Neustroev <sup>3</sup> , V.K. Shamardin <sup>3</sup> (JSC OKB “GIDROPRESS”, <sup>2</sup> NRC “Kurchatov Institute” – CRISM “Prometey”, <sup>3</sup> JSC “SSC RIAR”)	8.20–8.40
3	Investigation of fracture toughness of the PVI metal after 45 years operation in VVER-440 reactor of Novovoronezh NPP <b>A.I. Minkin</b> , B.Z. Margolin, V.N. Fomenko, V.I. Smirnov, A.Ya. Varovin, N.E. Pirogova, V.A. Shvetsova (NRC “Kurchatov Institute” – CRISM “Prometey”)	8.40–9.00
4	Effect of long-term exposure of operational parameters in VVER-440 reactor on materials’ structure and phase composition of internals components <b>E.A. Kuleshova</b> <sup>1,2</sup> , B.A. Gurovich <sup>1</sup> , A.S. Frolov <sup>1</sup> , D.A. Maltsev <sup>1</sup> , S.V. Fedotova <sup>1</sup> , I.V. Fedotov <sup>1</sup> , B.Z. Margolin <sup>3</sup> , A.I. Minkin <sup>3</sup> , A.A. Sorokin <sup>3</sup> ( <sup>1</sup> NRC “Kurchatov Institute”, <sup>2</sup> National Research Nuclear University “MEPhI”, <sup>3</sup> NRC “Kurchatov Institute” – CRISM “Prometey”)	9.00–9.20
5	Experimental investigation of fracture toughness of austenitic steel of 18Cr-9Ni grade over wide temperature range after long term neutron irradiation in BN-600 reactor <b>A.A. Buchatsky</b> , B.Z. Margolin, A.G. Gulenko, V.I. Smirnov, N.E. Pirogova, A.A. Sorokin (NRC “Kurchatov Institute” – CRISM “Prometey”)	9.20–9.40
<b>9.40–10.00 Coffee break</b>		

**Section 2: Structural materials for nuclear and fusion reactors, Session #2**  
(great hall of the Slavsky Conference Center), **10.00–12.00**  
**Chair:** B.Z. Margolin (NRC “Kurchatov Institute” – CRISM “Prometey”)

1	Swelling, creep and embrittlement of D9 stainless steel cladding and duct in four FFTF driver fuel assemblies after high neutron exposures <b>F. A. Garner</b> (Moscow Engineering Physics Institute, Department of Materials Science)	10.00–10.20
2	Study of low-temperature radiation hardening of ferritic-martensitic steels <b>S.V. Rogozhkin</b> <sup>1,2</sup> , A.A. Nikitin <sup>1,2</sup> , N.A. Iskandarov <sup>1</sup> , A.A. Khomich <sup>1</sup> , V.V. Khoroshilov <sup>1</sup> , A.A. Bogachev <sup>1</sup> , A.A. Lukyanchuk <sup>1</sup> , O.A. Raznitsyn <sup>1</sup> , A.S. Shutov <sup>1</sup> , P.A. Fedin <sup>1</sup> , T.V. Kulevoy <sup>1</sup> , A.L. Vasilyev <sup>3</sup> , M.Yu. Presnyakov <sup>3</sup> , K.S. Kravchuk <sup>4</sup> , A.S. Useinov <sup>4</sup> , M.V. Leontyeva-Smirnova <sup>5</sup> , E.M. Mozhanov <sup>5</sup> ( <sup>1</sup> NRC “Kurchatov Institute” – ITEP, <sup>2</sup> National Research Nuclear University “MEPhI”, <sup>3</sup> NRC “Kurchatov Institute”, <sup>4</sup> FSBI TISNCM, <sup>5</sup> JSC “VNIINM”)	10.20–10.40
3	High temperature irradiation embrittlement in neutron irradiated austenitic stainless steels 08Kh18Ni10T, EI-847, EP-172 and ChS-68 <b>S.I. Porollo</b> , A.A. Ivanov, Yu.V. Konobeev, S.V. Shulepin (JSC “SSC RF-IPPE”)	10.40–11.00
4	Radiation phenomena in irradiated austenitic steels after long irradiation in BOR-60 reactor <b>V.S. Neustroev</b> , S.V. Belozerov, E.I. Makarov, D.E. Markelov, A.V. Obukhov, D.A. Sokolowsky (JSC “SSC RIAR”)	11.00–11.20
5	Optimization of structural-phase state of fuel pin claddings made of steel EK164 in order to increase the resource efficiency of fast neutron reactors fuel assemblies <b>T.A. Churyumova</b> , N.M. Mitrofanova (JSC “VNIINM”)	11.20–11.40
6	Study on the heat insulation materials with high temperature sodium in sodium-cooled fast reactor <b>Jinquan ZhANG</b> , Xiaogang FU, Bo QIN, Haoran Ma, Zhangshun RUAN, Liu TAO and Bin LONG (China Institute of atomic energy)	11.40–12.00
<b>12.00–13.30 Lunch</b>		

**Section 2: Structural materials for nuclear and fusion reactors, Session #3**  
(great hall of the Slavsky Conference Center), **13.30–15.30**  
**Chair:** M.V. Leontyeva-Smirnova (JSC “VNIINM”)

1	The Effect of Oxygen and Hydrogen on Stress Corrosion Cracking of 304NG Stainless Steel in High Temperature Water with Trace Chloride Ion for PWR Primary Loop <b>Peng DeQuan</b> , Wang Hui, Hu Yong, Zhang BaoLiang (China Institute of atomic energy)	13.30–13.50
2	Microstructural and Chemical Characterization of Irradiation Effects in Claddings with Different Alloy Compositions. <b>K.D. Johnson</b> <sup>1</sup> , K.I. Lafchiev <sup>1</sup> , D. Jädernäs <sup>1</sup> , O. Tengstrand <sup>1</sup> , A.Y Shevyakov <sup>2</sup> , A.B. Dolgov <sup>3</sup> , A.V. Ugryumov <sup>3</sup> ( <sup>1</sup> Studsvik Nuclear AB, <sup>2</sup> JSC “VNIINM”, <sup>3</sup> JSC “TVEL”)	13.50–14.10
3	Effect of irradiation on susceptibility of ferritic-martensitic steels to liquid metal embrittlement in liquid lead-bismuth environment <b>S. Gavrilov</b> , E. Stergar, M. Lambrechts, M. Konstantinovic, J. Van den Bosch (SCK•CEN, Belgian Nuclear Research Centre)	14.10–14.30
4	Radiation creep and swelling of steel 08X18H10T at 350–420°C <b>E.I. Makarov</b> , V.S. Neustroev, A.V. Obukhov, D.E. Markelov (JSC “SSC RIAR”)	14.30–14.50

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5	Evolution of the microstructure of austenitic steels after irradiation at 300–350 °C in reactors BOR-60 and SM <b>D.E. Markelov</b> <sup>1</sup> , V.S. Neustroev <sup>1</sup> , V.K. Shamardin <sup>1</sup> , B.Z. Margolin <sup>2</sup> , A.A. Sorokin <sup>2</sup> ( <sup>1</sup> JSC “SSC RIAR”, <sup>2</sup> NRC “Kurchatov Institute” – CRISM “Prometey”)	14.50–15.10
6	Neutron-dosimetric support of construction materials properties research experiments in reactor conditions <b>S.A. Enin</b> , V.V. Pavlov, A.R. Belozeroва, T.I. Chernysheva (JSC “SSC RIAR”)	15.10–15.30
<b>15.30–15.50 Coffee break</b>		

**Section 2: Structural materials for nuclear and fusion reactors, Session #4**  
(great hall of the Slavsky Conference Center), **15.50–17.30**  
**Chair:** M.V. Skupov (JSC “VNIINM”)

1	Examination of corrosion in ЭП823-III steel claddings of the fuel rods with lead and helium substrates <b>Ilnur F. Gilmutdinov</b> <sup>1</sup> , F.N. Kryukov <sup>1</sup> , O.N. Nikitin <sup>1</sup> , I.Yu. Zhemkov <sup>1</sup> , M.V. Skupov <sup>2</sup> , Yu.A. Ivanov <sup>2</sup> ( <sup>1</sup> JSC “SSC RIAR”, <sup>2</sup> JSC “VNIINM”)	15.50–16.10
2	Experiment-based and calculation data analysis of the operating conditions for the BOR-60 irreplaceable components I.Yu. Zhemkov, <b>Yu.V. Naboishchikov</b> , Yu.M. Krasheninnikov (JSC “SSC RIAR”)	16.10–16.30
3	Irradiation-induced swelling of BOR-60 small rotation plug studs V.S. Neustroev, <b>D.A. Sokolovsky</b> , S.V. Belozeroв, I.Yu. Zhemkov, E.I. Makarov, Yu.V. Naboishchikov, A.I. Plotnikov, N.S. Poglyad, N.I. Shirokova (JSC “SSC RIAR”)	16.30–16.50
4	Quality control procedure applied to welded joints of fuel elements for BN-800 reactor with mixed oxide uranium-plutonium fuel <b>M.A. Litvinova</b> , A.A. Maltsev (FSUE “PA “Mayak”)	16.50–17.10
5	Welding of test specimens and test rigs intended for irradiation testing <b>A.V. Kaplin</b> , E.M. Tabakin, S.A. Andreyev (JSC “SSC RIAR”)	17.10–17.30

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**Section 1: Power reactor fuel and fuel elements, Session #5**  
(small hall of the Slavsky Conference Center), **8.00–9.40**  
**Chair:** V.M. Troyanov (JSC “Rosenergoatom Concern”)

1	Modernization of models describing behavior of mixed uranium-plutonium nitride fuel in code KORAT and their verification on experimental data <b>O.V. Khoruzhii</b> <sup>1</sup> , V.G. Zborovskii <sup>1</sup> , N.N. Elkin <sup>1</sup> , Ya.R. Lifanov <sup>1</sup> , V.V. Likhanskii <sup>1</sup> , O.N. Nikitin <sup>2</sup> , A.V. Belyaeva <sup>2</sup> , Yu.A. Ivanov <sup>3</sup> , A.Yu. Ivanov <sup>3</sup> , I.V. Kozhevnikova <sup>3</sup> , G.A. Kireev <sup>3</sup> , M.V. Skupov <sup>3</sup> ( <sup>1</sup> JSC “SRC RF TRINITY”, <sup>2</sup> JSC “SSC RIAR”, <sup>3</sup> JSC “VNIINM”)	8.00–8.20
2	Specific details of swelling in uranium-plutonium nitride fuel used for fabrication of helium gas- and liquid metal-bonded test fuel rods <b>A.V. Belyaeva</b> , F.N. Kryukov, O.N. Nikitin, S.V. Kuzmin (JSC “SSC RIAR”)	8.20–8.40
3	The method of the uranium sesquinitride residual amount for determining in mixed nitride nuclear fuel <b>M.P. Krivov</b> <sup>1</sup> , G.A. Kireev <sup>1</sup> , A.V. Davydov <sup>1</sup> , A.V. Tenishev <sup>2</sup> ( <sup>1</sup> JSC “VNIINM”, <sup>2</sup> National Research Nuclear University “MEPhI”)	8.40–9.00

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4	Uranium-zirconium carbonitride fuel: preparation for studies at critical assemblies and in-pile tests <b>A.N. Bakhin</b> <sup>1</sup> , Sh.T. Tukhvatulin <sup>1</sup> , Izhutov A.L. <sup>3</sup> , I.E. Galev <sup>1</sup> , V. Yu. Vishnevsky <sup>1</sup> , S.N. Sikorin <sup>2</sup> , A.V. Kuzmin <sup>2</sup> , S.G. Mandik <sup>2</sup> , S.A. Polozov <sup>2</sup> , T.K. Grigorovich <sup>2</sup> , Seredkin S.V. <sup>3</sup> ( <sup>1</sup> FSUE "SRI SIA "Luch", <sup>2</sup> Scientific Institution "JIPNR – Sosny", <sup>3</sup> JSC "SSC RIAR")	9.00–9.20
5	Experience and feasibility of co-using oxide and nitride fuels and metal uranium in BN reactors <b>Yu.M. Golovchenko</b> <sup>1</sup> , M.V. Skupov <sup>2</sup> ( <sup>1</sup> JSC "SSC RIAR", <sup>2</sup> JSC "VNIINM")	9.20–9.40
<b>9.40–10.00 Coffee break</b>		

**Section 1: Power reactor fuel and fuel elements, Session #6**  
(small hall of the Slavsky Conference Center), **10.00–12.00**  
**Chair:** G.V. Kulakov (JSC "VNIINM")

1	Condition and development direction of cores of ice-breaker NPP and SMR <b>A.I. Romanov</b> , V.Yu. Papotin, A.N. Lepekhin, A.A. Zakharychev, S.G. Petrov (JSC "Afrikantov OKBM")	10.00–10.20
2	A core for small power nuclear power plants <b>A.A. Zakharychev</b> , V.Yu. Papotin <sup>1</sup> , L.M. Stadnik <sup>1</sup> , A.A. Sheldyakov <sup>2</sup> , S.I. Korovushkin <sup>3</sup> ( <sup>1</sup> JSC "Afrikantov OKBM", <sup>2</sup> JSC "SSC RIAR", <sup>3</sup> PJSC "Mashinostroitelny Zavod")	10.20–10.40
3	Effect of irradiation on physical and mechanical properties and structure of chromium-nickel alloy 42XHM <b>A.A. Sheldyakov</b> <sup>1</sup> , V.Yu. Shishin <sup>1</sup> , V.V. Yakovlev <sup>1</sup> , G.V. Kulakov <sup>2</sup> , Yu.V. Konovalov <sup>2</sup> ( <sup>1</sup> JSC "SSC RIAR", <sup>2</sup> JSC "VNIINM")	10.40–11.00
4	Pre-reactor tests of fragments of uranium-zirconium metal fuel rods obtained during the modernization of the reactor core IVG.1M <b>K.K. Polunin</b> , A.N. Bakhin, D.A. Zaytsev, D.M. Soldatkin, V.A. Solntsev (FSUE "SRI SIA "Luch")	11.00–11.20
5	Development of technology of manufacturing tvels with small harmful absorption for FAs of a modernized active zone of the SM reactor E.L. Sannikov, V.V. Lemekhov, V.G. Kolosovsky, <b>R.S. Korotkov</b> , E.L. Lupanina (PJSC "Mashinostroitelny Zavod")	11.20–11.40
6	Examination of experimental dispersed fuel compositions to justify the performance of low neutron poisoning fuel rods to be used in the SM reactor <b>Ilgiz F. Gilmutdinov</b> , V.Yu. Shishin, F.N. Kryukov, V.V. Pimenov, E.I. Efimov (JSC "SSC RIAR")	11.40–12.00
<b>12.00–13.30 Lunch</b>		

**Section 1: Power reactor fuel and fuel elements, Session #7**  
(small hall of the Slavsky Conference Center), **13.30–15.30**  
**Chair:** V.A. Zhitelev (JSC "SSC RIAR")

1	Post Irradiation Examinations of Three TVEL Fuel Rods Irradiated in Ringhals NPP during Three Reactor Cycles <b>K.I. Lafchiev</b> <sup>1</sup> , K.D. Johnson <sup>1</sup> , D.G. Jädernäs <sup>1</sup> , A.Y. Shevyakov <sup>2</sup> , A.B. Dolgov <sup>3</sup> , A.V. Ugryumov <sup>3</sup> ( <sup>1</sup> Studsvik Nuclear AB, <sup>2</sup> JSC "VNIINM", <sup>3</sup> JSC "TVEL")	13.30–13.50
2	Results of post-irradiation examinations of the sponge-based E100 opt. alloy operated as fuel cladding material in alternative TVSA-ALPHA up to attaining a burnup of 42 MW day/kg U to establish the experimental databank in support of Russian fuel licensing for PWR plants	13.50–14.10



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	<b>Yu.D. Goncharenko</b> <sup>1</sup> , S.G. Eremin <sup>1</sup> , E.V. Chertopyatov <sup>1</sup> , A.V. Obukhov <sup>1</sup> , T.M. Bulanova <sup>1</sup> , G.M. Shishalova <sup>1</sup> , A.Yu. Shevyakov <sup>2</sup> , S.A. Bekrenev <sup>2</sup> , V.V. Novikov <sup>2</sup> , V.A. Markelov <sup>2</sup> ( <sup>1</sup> JSC "SSC RIAR", <sup>2</sup> JSC "VNIINM")	
3	Measurement of hydrogen content in oxide films and metal of water-cooled reactor FA components made of zirconium alloys <b>G.V. Shishalova</b> , G.P. Kobylansky, A.M. Novikov, I.N. Volkova (JSC "SSC RIAR")	14.10–14.30
4	Problems of examining uranium and plutonium dioxides using scanning electronic microscopy. Possible ways to solve the problems. Selecting optimum mode for examination of MOX-fuel for BN-800 reactors <b>A.A. Maltsev</b> , M.A. Litvinova (FSUE "PA "Mayak")	14.30–14.50
5	Water chemistry of MIR reactor loops to test new fuels and materials A.L. Izhutov, A.L. Petelin, V.A. Svistunov, <b>O.N. Vladimirova</b> , V.I. Vasiliev, S.A. Dvoinishnikova, E.O. Demidovskaya (JSC "SSC RIAR")	15.10–15.30
<b>15.30–15.50 Coffee break</b>		
	<b>Poster section</b>	15.50–17.00

**Section 2: Structural materials for nuclear and fusion reactors, Session #5**  
(great hall of the Slavsky Conference Center), **8.00–9.40**  
**Chair:** E.A. Kuleshova (NRC "Kurchatov Institute")

1	Methodology of justification of radiation resistance of reactor pressure vessels of nuclear propulsion systems <b>I.S. Zhaurov</b> <sup>1</sup> , V.A. Panov <sup>1</sup> , V.P. Fedorin <sup>1</sup> , E.A. Ivanenko <sup>2</sup> , B.Z. Margolin <sup>2</sup> , A.M. Morozov <sup>2</sup> , V.A. Petrov <sup>2</sup> , E.V. Yurchenko <sup>2</sup> ( <sup>1</sup> JSC "Afrikantov OKBM", <sup>2</sup> NRC "Kurchatov Institute" – CRISM "Prometey")	8.00–8.20
2	VVER vessel steels with guaranteed level of resistance to brittle damage V.V. Orlov <sup>1</sup> , V.N. Skorobogatykh <sup>1</sup> , <b>N.P. Anosov</b> <sup>1</sup> , Zh.V. Yurgina <sup>1</sup> , V.A. Mikheev <sup>1</sup> , K.N. Koscheev <sup>2</sup> , S.V. Barsanova <sup>2</sup> , V.K. Shamardin <sup>3</sup> ( <sup>1</sup> JSC "RPA "CNIITMASH", <sup>2</sup> JSC "INM", <sup>3</sup> JSC "SSC RIAR")	8.20–8.40
3	Development of ferritic steels for fuel cladding <b>B.A. Tarasov</b> <sup>1,2</sup> , I.I. Konovalov <sup>2</sup> , M.D. Savel'yev <sup>2</sup> , S.N. Nikitin <sup>2</sup> , M.S. Tarasova <sup>2</sup> , D.P. Shornikov <sup>2</sup> ( <sup>1</sup> JSC "VNIINM", <sup>2</sup> NRNU "MEPhI")	8.40–9.00
4	Examinations of tube bundle for steam generator OPG-1 after its long-term operation in the BOR-60 reactor <b>T.M. Bulanova</b> , V.S. Neustroev, Yu.M. Krasheninnikov, A.A. Karsakov, Yu.D. Goncharenko, L.A. Evseyev, I.V. Shagvaliev, I.N. Kuchkina, V.V. Povstyanko, A.G. Prokhorov (JSC "SSC RIAR")	9.00–9.20
5	Corrosive and mechanical resistance of MgO ceramics in molten salts under metallizing and mild chlorination of spent nuclear fuel <b>O.A. Golosov</b> <sup>1</sup> , S.S. Khvostov <sup>1</sup> , N.V. Glushkova <sup>1</sup> , M.V. Evseev <sup>1</sup> , S.V. Staritsyn <sup>1</sup> , Yu.P. Zaikov <sup>2</sup> , V.A. Kovrov <sup>2</sup> , E.V. Nikitina <sup>2</sup> , A.S. Kholkina <sup>2</sup> , N.A. Kazakovtseva <sup>2</sup> ( <sup>1</sup> JSC "INM", <sup>2</sup> IHTE UB RAS)	9.20–9.40
<b>9.40–10.00 Coffee break</b>		

**Section 2: Structural materials for nuclear and fusion reactors, Session #6**  
(great hall of the Slavsky Conference Center), **10.00–12.00**  
**Chair:** V.S. Neustroev (JSC "SSC RIAR")

1	Radiation tolerance of ultrafine-grained materials produced by severe plastic deformation <b>N.A. Enikeev</b> <sup>1,2</sup> , V.K. Shamardin <sup>3</sup> , B. Radiguet <sup>4</sup> ( <sup>1</sup> USATU, <sup>2</sup> SPSU, <sup>3</sup> JSC "SSC RIAR", <sup>4</sup> UNIROUEN, INSA Rouen, CNRS)	10.00–10.20
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2	Mechanical properties and structure of irradiated ultra-fine grained steel 08X18H10T produced by equal-channel angular pressing V.K. Shamardin <sup>1</sup> , T.M. Bulanova <sup>1</sup> , <b>A.A. Karsakov</b> <sup>1</sup> , A.V. Obukhov <sup>1</sup> , L.A. Evseyev <sup>1</sup> , E.P. Belan <sup>1</sup> , R.Z. Valiev <sup>2</sup> , N.A. Enikeyev <sup>2</sup> , I.V. Alexandrov <sup>2</sup> , M.M. Abramova <sup>2</sup> , A.K. Glushkova <sup>3</sup> ( <sup>1</sup> JSC “SSC RIAR”, <sup>2</sup> USATU, <sup>3</sup> NRNU “MEPhI”)	10.20–10.40
3–4	Production of Large Monocrystalline Ingots and Discs of Molybdenum and its Alloys by Means of Electron-Beam Zone Melting for Fabrication of Special-Purpose Products E.G. Kolesnikov, <b>V.A. Stepanov</b> , <b>P.A. Stepanchikov</b> , R.A. Fedoseev, A.N. Shotaev (FSUE “SRI SIA “Luch”)	10.40–11.20
5	Classification of irradiation rigs for material testing in BOR-60 reactor <sup>1,2</sup> V.Yu. Anisimov, <sup>1</sup> S.G. Eremin, <sup>1,2</sup> A.V. Boev, <sup>1</sup> I.Yu. Zhemkov, <sup>1</sup> A.I. Plotnikov, <sup>1,2</sup> <b>N.S. Poglyad</b> ( <sup>1</sup> JSC “SSC RIAR”, <sup>2</sup> NRNU “MEPhI”)	11.20–11.40
<b>12.00–13.30 Lunch</b>		

**Section 3: Absorbing and moderating materials, Session #1**  
(great hall of the Slavsky Conference Center), **13.30–15.30**

**Chair:** V.D. Risovany (JSC “Science and Innovations”, ROSATOM State Corporation)

1	Tritium and helium release from beryllium-based materials irradiated up to high neutron doses <b>V. Chakin</b> , R. Rolli (KIT, Institute for Applied Materials)	13.30–13.50
2	Effect of nuclear reaction products in beryllium on research reactor physical and process parameters <b>A.P. Malkov</b> , V.V. Pimenov, V.V. Kalygin (JSC “SSC RIAR”)	13.50–14.10
3	Investigation compatibility B4C pellet with stainless steel cladding and high temperature sodium for sodium-cooled fast reactor <b>Bo QIN</b> , Xiaogang FU, Bin LONG (China Institute of Atomic Energy)	14.10–14.30
4	Post-irradiation examinations of absorber material for compound absorber rods of the VVER control and protection system after operation in the VVER-1000 reactors of Kalinin and Balakovo nuclear power plants <b>A.V. Zakharov</b> , E.M. Muraleva (JSC “SSC RIAR”)	14.30–14.50
5	Thermal and physical properties of nuclear-reactor-grade graphite irradiated up to high neutron fluence values <b>E.P. Belan</b> , D.V. Khar’kov (JSC “SSC RIAR”)	14.50–15.10
<b>15.30–15.50 Coffee break</b>		
	Poster section	15.30–17.00
	Conference wrap-up	
	Speeches of conference guests: <b>A.V. Ugryumov</b> , <b>B.A. Kalin</b> , <b>M.V. Skupov</b> , <b>B.Z. Margolin</b> , <b>B.A. Gurovich</b> , <b>Frank Garner</b>	17.00–17.30
	Close of conference: <b>A.A. Tuzov</b> , <b>A.L. Izhutov</b> , <b>E.A. Zvir</b>	

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**THURSDAY, 30 MAY 2019**

**Poster section**

(flow area on the 2<sup>nd</sup> floor of the Slavsky Conference Center), **15.50–17.00**

**Chair: V.S. Neustroev (JSC "SSC RIAR")**

1	Effect of the damage dose accumulation rate on the microstructure of Fe-18Cr-10Ni-Ti steel irradiated in the BOR-60 reactor at 330–350°C <u>D.E. Markelov</u> , A.V. Obukhov, V.S. Neustroev (JSC "SSC RIAR")
2	Molecular dynamic simulation of atomic displacement cascades in binary alloys Zr-(0.5-3)%Nb: analysis of the distribution of niobium atoms in self-interstitial configurations <u>P.E. Kapustin</u> , M.Yu. Tikhonchev, V.V. Svetukhin (USU)
3	Prediction of the SAV-1 alloy properties under neutron irradiation conditions to justify radiation life time of the research nuclear reactor O.V. Golubeva <sup>1</sup> , V.A. Petrov <sup>1</sup> , E.A. Ivanenko <sup>1</sup> , A.M. Morozov <sup>1</sup> , <u>S.R. Fridman</u> <sup>2</sup> , B.S. Rodchenkov <sup>3</sup> , A.V. Vasiliev <sup>4</sup> ( <sup>1</sup> NRC "Kurchatov Institute" – CRISM "Prometey", <sup>2</sup> NRC "Kurchatov Institute" – PNPI, <sup>3</sup> JSC "NIKIET", <sup>4</sup> JSC "RIPC")
4	Contribution of swelling and irradiation-induced creep into the total deformation of BN-600 fuel pin claddings made of steel ChS68-ID by the advanced technology <u>P.I. Grin</u> , V.S. Neustroev, A.V. Strozhuik (JSC "SSC RIAR")
5	Tubular samples short-term mechanical tensile tests methods improving to create a database on post-irradiation properties of zirconium alloys <u>A.Yu. Shevyakov</u> <sup>1</sup> , A.Yu. Gusev <sup>1</sup> , S.A. Bekrenev <sup>1</sup> , V.A. Markelov <sup>1</sup> , V.V. Novikov <sup>1</sup> , Yu.D. Goncharenko <sup>2</sup> , S.G. Eremin <sup>2</sup> , E.V. Chertopyatov <sup>2</sup> ( <sup>1</sup> JSC "VNIINM", <sup>2</sup> JSC "SSC RIAR")
6	Post-irradiation examinations of welded joints for steam generator in operation in the BOR-60 reactor <u>S.A. Andreyev</u> , Yu.V. Ivanovich, E.M. Tabakin, T.M. Bulanova, O.Yu. Makarov, Yu.M. Krasheninnikov (JSC "SSC RIAR")
7	Study on the behavior of delayed hydride cracking and microstructure of Zr-2.5Nb pressure tube material <u>Bian Wei</u> , Guo Lina (Department of Reactor Energizing Research and Design, CIAE)
8	The fuel-cladding chemical interaction test between lanthanide containing U-Zr metallic fuel and HT9 <u>In-Su Han</u> , Ju-Seong Kim, Jin-Sik Cheon (Korea Atomic Energy Research Institute)
9	A mathematical model of radiation shape changing of core assemblies of fast sodium-cooled reactors and its implementation in a current analytical code O.Yu. Vilensky, <u>A.V. Ryabtsov</u> (JSC "Afrikantov OKBM")
10	Behavior of VVER-1000 fuel rods under simulated dry storage conditions <u>P.A. Ilyin</u> , E.A. Zvir, P.I. Grin (JSC "SSC RIAR")
11	Elaboration of method for testing mechanical properties of tubular specimens under internal pressure of plastic filler S.G. Eremin, <u>D.V. Khar'kov</u> , D.A. Glushkov (JSC "SSC RIAR")
12	Atomistic simulation of self-diffusion on the grain boundaries in HCP-zirconium <u>M.Yu. Tikhonchev</u> , V.V. Svetukhin (USU)
13	Analysis of the VVER-1000 fuel rod thermal-mechanical state based on the MIR-LOCA/72 experiment data Alekseev A.V., <u>Dreganov O.I.</u> , Zakharova L.P., Kireev N.V., Kiseleva I.V., Shulimov V.N. (JSC "SSC RIAR")
14	Preliminary results and prospects of NMR spectroscopy methods in the study of the phase composition of uranium mononitride <u>V.V. Ogloblichev</u> <sup>1</sup> , A.M. Potapov <sup>2</sup> , S.V. Verkhovskii <sup>1</sup> ( <sup>1</sup> IMP UB RAS, <sup>2</sup> IHTE UB RAS)

**FRIDAY, 31 MAY 2019**

Technical tour	10.00–13.00
<b>13.00–14.30 Lunch</b>	

Departure of participants