Programme

30 September – 4 October 2018
Prague, Czech Republic

ENS CONFERENCE

Organised in cooperation with

IAEA
International Atomic Energy Agency
Atoms for Peace

Sunday 30 September 2018

17:00 - 19:00 Pre-registration

18:00 – 19:30 Welcome Reception

Monday 1 October 2018

Mo 9.00 – 11.00 Opening Plenary Session

Welcome Addresses

An overview on nuclear power in the Czech Republic
J. Stuller, Ministry of Industry and Trade of the Czech Republic

Fuel of 2050: continuity or disruptive innovation?
C. Xerri, IAEA

Perspectives of the nuclear industry and nuclear fuel development in Europe
D. Iracane, OECD

Enhanced accident tolerant fuel
K. Pasamehmetoglu, Idaho National Laboratory

Mo 11.00 – 11.30 Coffee break

Mo 11.30 – 13.30 EATF Keynote Session

TopFuel2018-A0152	Cr-coated cladding development at Framatome	Bischoff, J. (1); Delafoy, C. (1); Chaari, N. (1); Vauglin, C. (1); Barberis, P. (1); Schuster, F. (2); Brachet, J.-C. (2); Nimishakavi, K. (3) 1 - Framatome, France 2 - CEA, France 3 - Framatome Inc, United States
TopFuel2018-A0141	PATH TOWARDS INDUSTRIALISATION OF ENHANCED ACCIDENT TOLERANT FUEL	Lin, Y.-P. (1); Fawcett, R. (1); Cantonwine, P. (1); Mccumbee, P. (1); Augi, R. (1); Yilmaz, M. (1); Rebak, R. (2); Dunavant, R. (3);

		Satterlee, N. (3) 1 - Global Nuclear Fuel, United States 2 - GE Global Research Center, United States 3 - Southern Nuclear, United States
TopFuel2018-A0145	Development, Testing and Scaling-up of Coated Cladding for EnCore® Fuel	Romero, J. (1); Walters, J. (1); Kachur, S. (1); Jacko, R. (1); Partezana, J. (1); Mueller, A. (1); Byers, W. (1); Wang, G. (1); Shah, H. (1) 1 - Westinghouse Electric Company, United States
TopFuel2018-A0034	Japanese R&D Program for Establishing Technical Basis of Accident Tolerant Fuel Materials	Yamashita, S. (1); Ioka, I. (1); Nemoto, Y. (1); Kaji, Y. (1); Fukahori, T. (1); Nozawa, T. (2); Watanabe, S. (3); Kirimura, K. (4); Sato, H. (5); Kondo, T. (6); Sakamoto, K. (7); Kusagaya, K. (8); Ukai, S. (9); Kimura, A. (10); Yamaji, A. (11) 1 - Japan Atomic Energy Agency, Japan 2 - National Institutes for Quantum and Radiological Science and Technology, Japan 3 - Mitsubishi Nuclear Fuel, Co., Ltd., Japan 4 - Mitsubishi Heavy Industries, Ltd., Japan 5 - Toshiba Energy Systems & Solutions Corporation, Japan 6 - Hitachi-GE Nuclear Energy, Ltd., Japan 7 - Nippon Nuclear Fuel Development, Co., Ltd., Japan 8 - Global Nuclear Fuel – Japan, Japan 9 - Hokkaido University, Japan 10 - Kyoto University, Japan 11 - Waseda University, Japan
TopFuel2018-A0075	Fuel Performance Analysis for enhanced characteristics of the Accident Tolerant Fuel on the Loss-of-Coolant Accident condition	Shin, C. (1); Kim, H. (1); Yang, Y.-S. (1); In, W.-K. (1) 1 - Korea Atomic Energy Research Institute, Korea, Republic of
TopFuel2018-A0244	Progress of CGN Accident Tolerant Fuel R&D program	Liu, T. (1); Li, R. (1); Xue, J. (1); Gao, R. (2); Li, L. (1) 1 - China Nuclear Power Technology Research Institute, China Nuclear Power Corporation, China 2 - Institute of Material, China Academy of Engineering Physics, China

Mo 11.30 – 13.30 The IAEA FUMAC Project

TopFuel2018-A0198	FUMAC: IAEA's Coordinated Research Project on Fuel Modelling in Accident Conditions.	Veshchunov , M. (1); Stuckert, J. (2); Van Uffelen , P. (3); Wiesenack , W. (4); Zhang , J. (5) 1 - IAEA, Austria 2 - KIT, Germany 3 - EC/ITU, Germany 4 - IFE, Norway 5 - Tractebel-ENGIE, Belgium
TopFuel2018-A0202	IAEA FUMAC Benchmark on KIT Bundle Test CORA-15	Stuckert, J. (1) 1 - Karlsruhe Institute of Technology (KIT), Germany
TopFuel2018-A0206	IAEA FUMAC Benchmark on Uncertainty and Sensitivity Analysis for Fuel Rod Code Simulation of the Halden LOCA Test IFA-650.10	Zhang, J. (1); Bouloré, A. (2) 1 - Tractebel (ENGIE), Belgium 2 - CEA, France
TopFuel2018-A0222	IAEA FUMAC Benchmark on the Halden, Studisvik and QUENCH-L1 LOCA tests	Pizzocri, D. (1); Bouloré, A. (2); Stuckert, J. (3); Van Uffelen, P. (4); Wiesenack, W. (5); Zhang, J. (6) 1 - Politecnico di Milano, Department of Energy, Nuclear Engineering Division, Italy 2 - CEA, DEN, DEC Fuel Research Department, France 3 - Karlsruhe Institute of Technology, Germany 4 - European Commission, Joint Research Centre, Directorate for Nuclear Safety and Security, Germany 5 - Institutt for energiteknikk, OECD Halden Reactor Project, Norway, Norway 6 - Tractebel (ENGIE), Belgium
TopFuel2018-A0240	IAEA FUMAC benchmark of fuel performance codes based on LOCA separate-effects cladding tests	Pastore, G. (1); Kulacsy, K. (2) 1 - Fuel Modeling and Simulation Department, Idaho National Laboratory, United States 2 - Fuel and Reactor Materials Department, Centre for Energy Research, Hungarian Academy of Sciences, Hungary

Mo 13.30 – 14.30 Lunch break

Mo 14.30 – 16.10 Parallel Session: Modelling, analysis and methods

TopFuel2018-A0015	Development of fully coupled FRAPTRAN with MARS-KS code system for calculation of fuel behavior during LOCA	Kim, H. (1); Shin, C. (1); Yang, Y. (1); Kim, T. (2) 1 - Korea Atomic Energy Research Institute, Korea, Republic of 2 - Incheon National University, Korea, Republic of
TopFuel2018-A0038	Towards a more detailed mesoscale fission product analysis in fuel performance codes: a coupling of the TRANSURANUS and MFPR codes	Pavlov, T. R. (1); Van Uffelen, P. (2); Kremer, F. (1); Schubert, A. (2); Dubourg, R. (1) 1 - Institut de Radioprotection et de Sureté Nucléaire, France 2 - European Commission, Joint Research Centre, Germany
TopFuel2018-A0084	High Burnup Structure formation and growth and FP release modelling: new simulations in the mechanistic code MFPR	Kremer, F. (1); Rondinella, V. (2); Dubourg, R. (1); Cappia, F. (2); Van Uffelen, P. (2) 1 - Institut de Radioprotection et de Sureté Nucléaire, France 2 - European Commission, Joint Research Centre, Germany
TopFuel2018-A0096	Industry Use of CASL tools	Ray, S. (1); Gehin, J. (2); Mcdaniel, Z. (1) 1 - Westinghouse Electric Company, United States 2 - Oak Ridge National Laboratories, United States
TopFuel2018-A0106	Assessment of Radial Power Profile on Fuel Behavior Using a Coupled FAST/SCALE Approach	Porter, I. (1); Jessee, M. (2); Royston, K. (2); Wieselquist, W. (2); Yang, J. (2) 1 - US NRC, United States 2 - ORNL, United States

Mo 14.30 – 16.10 Parallel Session: Enhanced accident tolerant fuel

TopFuel2018-A0021	The Effects of TRISO Particles Distribution on Fuel Thermal and Mechanical Aspects	Jung, C. (1) 1 - KEPCO Nuclear Fuel, Korea, Republic of
TopFuel2018-A0060	Enhanced Radial Thermal Conductivity of UO2 Fuel Pellets with Molybdenum Microplates	Kim, D. S. (1); Kim, D.-J. (1); Oh, J. S. (1); Jeon, S.-C. (1); Kim, K. S. (1); Kim, J. H. (1); Yang, J. H. (1) 1 - Korea Atomic Energy Research Institute, Korea, Republic of
TopFuel2018-A0114	Code qualification for traditional LWR fuel and advanced LWR fuel	Geelhood, K. (1); Porter, I. (2); Bales, M. (2)

		1 - Pacific Northwest National Laboratory, United States 2 - United States Nuclear Regulatory Commission, United States
TopFuel2018-A0151	Overview of Westinghouse Lead Accident Tolerant Fuel Program	Lahoda, E. (1); Oelrich, R. (1); Karoutas, Z. (1); Ray, S. (1); Boylan, F. (1); Xu, P. (1); Romero, J. (1); Shah, H. (1) 1 - Westinghouse Electric Company LLC, United States
TopFuel2018-A0178	INSPECTION CAPABILITIES AND IN-PILE EXPERIENCE OF INNOVATIVE (EATF) MATERIALS AT KERNKRAFTWERK GÖSGEN-DÄNIKEN (KKG)	Girardin, G. (1); Meier, R. (1); Jatuff, F. (1); Bischoff, J. (2); Delafoy, C. (2); Schweitzer, E. (3) 1 - Kernkraftwerk Gösgen-Däniken, Nuclear Fuel Division, Switzerland 2 - Framatome, Fuel Design, France 3 - Framatome, Materials & Thermal-Mechanics, Germany

Mo 14.30 – 16.10 Parallel Session: Used fuel

TopFuel2018-A0033	POST-IRRADIATION EXAMINATIONS OF HIGH BURNUP PWR FUEL RODS - INITIAL RESULTS	Bevard, B. (1); Montgomery, R. (1); Scaglione, J. (1) 1 - Oak Ridge National Laboratory, United States
TopFuel2018-A0174	Ring compression testing of prehydrided PWR cladding with hydride blisters	Martin rengel, M. Á. (1); Ruiz hervías, J. (1); Gómez sámchez, J. (2) 1 - Dpto. Ciencia de materiales, E.T.S.I. Caminos, Canales y Puertos, Universidad Politécnica de Madrid, Spain 2 - Advanced Material Simulation, S.L. Madrid. Spain. www.amsimulation.com, Spain
TopFuel2018-A0177	High Burnup Spent Fuel Dry Storage Research Project	Waldrop, K. (1); Brookmire, T. (2); Tomlinson, D. (2); Perone, T. (2); Mcgee, D. (3) 1 - Electric Power Research Institute, United States 2 - Dominion Energy, United States 3 - Orano, United States
TopFuel2018-A0203	SPENT FUEL PREPARATION BEFORE DISPOSAL	Langenberger, J. (1); Albrecht, T. (1); Michna, J. (1); Lotaut, Y. (2); Jarousse, C. (2); Pugh, T. (3) 1 - Framatome GmbH, Germany 2 - Framatome, France 3 - Framatome Inc, United States
TopFuel2018-	TRANSPORT OF IRRADIATED NUCLEAR	Land, R. (1); Nilsson, S. (2); Winge,

A0218	FUEL BETWEEN REACTOR SITES FOR FURTHER USE	F. (3) 1 - Vattenfall Nuclear Fuel AB, Sweden 2 - Forsmark NPP, Sweden 3 - Ringhals NPP, Sweden

Mo 16.10 – 16.30 Coffee break

Mo 16.30 – 18.10 Parallel Session: Modelling, analysis and methods

TopFuel2018-A0147	Advancements in AOO and DBA Fuel Analysis by Coupling Fuel Performance and Thermal Hydraulics Codes	Porter, I. (1); Bernard, M. (1) 1 - US NRC, United States
TopFuel2018-A0183	UPDATE ON FRAMATOME'S ADVANCED SOLUTIONS AS A SERVICE SUPPORT TO REACTOR LIFETIME EXTENSION	Plancher, J. (1); Duperray, B. (1); Zheng, S. (1); Morichau-beauchant, C. (1); Chapoutier, N. (1); Segard, K. (2); Marten, J. (3) 1 - FRAMATOME, France 2 - FRAMATOME, United States 3 - FRAMATOME, Germany
TopFuel2018-A0192	ARTEMIS / RELAP5 INTEGRATED TRANSIENT ANALYSIS APPLICATION TO NON-LOCA TRANSIENTS	Maupin, K. (1); Bobolea, R. (1); Walters, W. (1); Parker, J. (1); Segard, K. (1); Barner, R. (1) 1 - Framatome, United States
TopFuel2018-A0223	FRAPTRAN VS COUPLED FRAPTRAN/CTF-UPVIS VALIDATION AGAINST IFA-650.2 TEST RESULTS	Hidalga, P. (1); Abarca, A. (2); Miró, R. (1) 1 - Universitat Politècnica de València (UPV), Spain 2 - North Carolina State University, United States
TopFuel2018-A0247	Seismic analysis of a full 3D reactor core using multi-physics modeling methodology	Baylor, J. (1); Choi, J. (1); Touran, N. (1); Werner, M. (1); Cohen, M. (1) 1 - TerraPower, LLC, United States

Mo 16.30 – 18.10 Parallel Session: Enhanced accident tolerant fuel

TopFuel2018-A0197	In-reactor testing at Halden for qualifying Accident Tolerant Fuel (ATF) cladding materials	Szőke, R. (1); Haugen, K.-M. (1) 1 - Institute for Energy Technology , Norway
TopFuel2018-A0011	Progress on Japanese Development of Accident Tolerant FeCrAl-ODS Fuel Claddings for BWRs	Sakamoto, K. (1); Miura, Y. (1); Ukai, S. (2); Kimura, A. (3); Yamaji, A. (4); Kusagaya, K. (5); Kondo, T. (6); Yamashita, S. (7) 1 - NFD, Japan 2 - Hokkaido Uni., Japan 3 - Kyoto Uni., Japan

		4 - Waseda Uni., Japan 5 - GNF-J, Japan 6 - Hitachi-GE Nuclear Energy, Japan 7 - JAEA, Japan
TopFuel2018-A0029	FUEL PERFORMANCE ASSESSMENT OF ENHANCED ACCIDENT TOLERANT FUEL USING IRON-BASED ALLOYS AS CLADDING	Giovedi, C. (1); Martins, M. (1); Abe, A. (2); Muniz, R. (2); Gomes, D. (2); Teixeira e silva, A. (2) 1 - University of São Paulo, Brazil 2 - Nuclear and Energy Research Institute , Brazil
TopFuel2018-A0030	Onset of an alternative FeCrAl cladding for a PHWR Accident Tolerant Fuel	Furlano, L. (1); Marino, A. (1) 1 - National Atomic Energy Commission , Argentina
TopFuel2018-A0036	Overview of Accident Tolerant Surface-Modified Fuel Cladding Development for LWRs	Kim, H.-G. (1); Yang, J.-H. (1); Koo, Y.-H. (1); Kim, J. (2); Shin, H. (2); Yoo, J. (3); Mok, Y.-K. (3) 1 - KAERI, Korea, Republic of 2 - KHNP, Korea, Republic of 3 - KepcoNF, Korea, Republic of

Mo 16.30 – 18.10 Parallel Session: Used fuel

TopFuel2018-A0224	ENUSA INTEGRAL SOLUTION TO FOR INTERGRANULAR STRESS CORROSION CRACKING ON EARLY 17X17 PWR DESIGNS	Canencia herranz, R. (1); García de la infanta, J. M. (1); De Navas Gutiérrez, I. (2); Blanco González, D. (3) 1 - Spent Fuel, ENUSA Industrias Avanzadas, Spain 2 - Equipment Development, ENUSA Industrias Avanzadas, Spain 3 - On Site Fuel Services, ENUSA Industrias Avanzadas, Spain
TopFuel2018-A0225	SIPPING OF FUEL ASSEMBLIES	Lotaut, Y. (1); Coustourier, F. (1); Jarousse, C. (1); Pugh, T. (2); Langenberger, J. (3); Hummel, W. (3); Albrecht, T. (3) 1 - Framatome, France 2 - Framatome Inc, United States 3 - Frmatome GmbH, Germany
TopFuel2018-A0230	ADVANCED VACUUM SIPPING FOR SPENT FUEL CLASSIFICATION	De Tena-Dávila Sarmentero, P. (1); Rodero Rodero, J. M. (1); Ramos Gallardo, A. (1) 1 - ENUSA, Spain
TopFuel2018-A0238	Oxidation of UO2 in dry and wet atmospheres	Leinders, G. (1); Ozdemir, O. (1); Pakarinen, J. (1); Delville, R. (1); Verwerft, M. (1) 1 - Institute for Nuclear Materials Science,

		Belgian Nuclear Research Centre (SCK•CEN), Belgium
TopFuel2018-A0249	Handling, Transport and First Results from Post-Irradiation Examination of Special Fuel Rods	Benen, A. (1); Hüttmann, A. (1); Lundberg, S. (1); Chazalet, A. (2); Karlsson, J. K. .-H. (2); Puranen, A. (2); Tejland, P. (2); Askeljung, C. (2); Alvarez, A.-M. (2) 1 - Vattenfall Europe Nuclear Energy GmbH, Germany 2 - Studsvik Nuclear AB, Sweden

Tuesday 2 October 2018

Tu 8.30 – 10.30 Parallel Session: Modelling, analysis and methods

TopFuel2018-A0043	SIMULATE5 FUEL PIN MODEL DESCRIPTION AND VERIFICATION AGAINST ENIGMA	Grandi, G. (1) 1 - Studsvik Scandpower, Inc., United States
TopFuel2018-A0074	Analysis of stress applied to fuel cladding with a burst opening under vibration	Kitano, K. (1); Ozawa, M. (1) 1 - Regulatory Standard and Research Department, Secretariat of Nuclear Regulation Authority (S/NRA/R), Japan
TopFuel2018-A0110	PCI Analysis of Zircaloy Coated Clad under LWR Steady State and Reactor Startup Operations Using BISON Fuel Performance Code	Capps, N. (1); Mai, A. (1); Kennard, M. (1); Liu, W. (1) 1 - Structural Integrity Associates, United States
TopFuel2018-A0116	Expanded Assessment of FRAPCON and FAST for Power Ramp Cases with short hold times and Advanced UO2 fuel with various dopants	Richmond, D. (1); Geelhood, K. (1) 1 - Pacific Northwest National Laboratory, United States
TopFuel2018-A0130	A modernized database for fuel performance experiments: the new IFPE	Martin, J.-F. (1); Hill, I. (1); Rossiter, G. (2); Soppera, N. (1); Bossant, M. (1) 1 - OECD Nuclear Energy Agency, France 2 - UK National Nuclear Laboratory (NNL), United Kingdom
TopFuel2018-A0135	Simulation of RIA transients on MOX fuel rods with ALCYONE fuel performance code	Guénot-delahaie, I. (1); Sercombe, J. (1); Bouloré, A. (1); Fédérici, E. (1); Largenton, R. (2); Bernaudat, C. (3); Mayot, H. (4) 1 - DEN/DEC, French Alternative Energies and Atomic Energy Commission (CEA), France 2 - Materials and Mechanics of Components Department (MMC), EDF R&D , France

		3 - PRC/TC, EDF – DIPNN – DIRECTION TECHNIQUE, France 4 - FRAMATOME, France

Tu 8.30 – 10.30 Parallel Session: Enhanced accident tolerant fuel

TopFuel2018-A0053	Assessing the electrochemical behavior of ferritic FeCrAl alloys in high temperature water.	Rebak, R. B. (1); Jurewicz, T. B. (1); Field, K. G. (2) 1 - GE Global Research, United States 2 - Oak Ridge National Laboratory, United States
TopFuel2018-A0054	Peculiarities of stainless steels application as ATF in VVERs	Savchenko, A. (1); Kulakov, G. (1); Konovalov, Y. (1) 1 - A.A. Bochvar Institute (VNIINM), Russian Federation
TopFuel2018-A0080	Corrosion behavior of FeCrAl-ODS steels in nitric acid solutions at several temperatures	Takahatake, Y. (1); Ambai, H. (1); Sano, Y. (1); Takeuchi, M. (1); Koizumi, K. (1); Sakamoto, K. (2); Yamashita, S. (1) 1 - Japan Atomic Energy Agency, Japan 2 - Nippon Nuclear Fuel Development, Co., Ltd., Japan
TopFuel2018-A0131	Performance Evaluation of Accident Tolerant Fuel Claddings during Severe Accidents of BWRs	Ikegawa, T. (1); Kondo, T. (1); Sakamoto, K. (2); Yamashita, S. (3) 1 - Hitachi-GE Nuclear Energy, Ltd., Japan 2 - Nippon Nuclear Fuel Development, Co., Ltd., Japan 3 - Japan Atomic Energy Agency, Japan
TopFuel2018-A0050	Preliminary Assessment of the Safety of M3/FCM-SiC Fuel under Loss of Coolant Accident	Qian, L. (1); Yu, H. (1); Sun, Y. (1); Huang, T. (1) 1 - Science and Technology on Reactor System Design Technology Laboratory, Nuclear Power Institute of China, CNNC, China
TopFuel2018-A0068	Enhancement of flow boiling performance of Zirconium-Silicide ATF by electrophoretic deposition(EPD)	Kim, M. (1); Noh, H. (1); Lee, G. C. (1); Kim, T. H. (1); Kim, T. K. (2); Yeom, H. (3); Jo, H. (3); Sridharan, K. (3); Park, H. S. (2); Kim, M. H. (2) 1 - Department of mechanical engineering, Pohang University of Science and Technology (POSTECH), Korea, Republic of 2 - Division of Advanced Nuclear Engineering, Pohang University of Science and Technology (POSTECH), Korea, Republic of 3 - Department of Engineering Physics, University of Wisconsin-Madison, United States

Tu 8.30 – 10.30 Parallel Session: Transient fuel behaviour

TopFuel2018-A0010	Comparative high-temperature oxidation tests with Zircaloy-4 in various atmospheres	Steinbrück, M. (1); Van appeldorn, P. (1) 1 - Karlsruhe Institute of Technology, Germany
TopFuel2018-A0016	Prediction of Boiling Crisis in a subchannel between four fuel rods	Li, Q. (1); Chen, P. (1); Feng, L. (1); Avramova, M. (2); Jiao, Y. (1); Yu, J. (1) 1 - Science and Technology on Reactor System Design Technology Laboratory, Nuclear Power Institute of China, China 2 - Department of Nuclear Engineering, North Carolina State University, United States
TopFuel2018-A0040	Effect of an oxide layer on the result of a ring compression test performed on a fuel cladding sample after a simulated LOCA transient	Desquines, J. (1); Guilbert, S. (1) 1 - IRSN, France
TopFuel2018-A0046	Thermal Resistance Effects of Oxide and Crud Layer to the Safety Analysis	Lee, J. (1); Jeong, H. (1) 1 - KINS, Korea, Republic of
TopFuel2018-A0064	New Insight on Volatile Fission Products (I and Cs) release from high burnup UO2 fuel under LOCA type conditions	Pontillon, Y. (1); Moysan, I. (1); Bernard, S. (1); Ledieu, M. (1) 1 - CEA, France
TopFuel2018-A0093	Behaviors of High-burnup LWR Fuels with Improved Materials under Design-basis Accident Conditions	Amaya, M. (1); Udagawa, Y. (1); Narukawa, T. (1); Mihara, T. (1); Taniguchi, Y. (1) 1 - Japan Atomic Energy Agency, Japan

Tu 10.30 – 11.00 Coffee break

Tu 11.00 – 12.40 Parallel Session: Modelling, analysis and methods

TopFuel2018-A0156	Fuel Performance Analysis of EnCore Fuel	Long, Y. (1); Kersting, P. (1); Linsuain, O. (1); Crede, T. (1); Oelrich, R. (1) 1 - Westinghouse Electric Company, LLC, United States
TopFuel2018-A0219	OECD/NEA benchmark on pellet-clad mechanical interaction modelling with fuel performance codes: impact of number of radial pellet cracks and pellet-clad friction coefficient	Dostal, M. (1); Rossiter, G. (2); Dethioux, A. (3); Zhang, J. (3); Amaya, M. (4); Rozzia, D. (5); Williamson, R. (6); Kozlowski, T. (7); Hill, I. (8) 1 - UJV, Czech Republic 2 - NNL, United Kingdom

		3 - Tractebel, Belgium 4 - JAEA, Japan 5 - SCK-CEN, Belgium 6 - INL, United States 7 - University of Illinois, United States 8 - OECD/NEA, France
TopFuel2018-A0229	3D Simulation of power ramps with ALCYONE including fuel thermochemistry and oxygen thermodiffusion	Konarski, P. (1); Sercombe, J. (1); Riglet-martial, C. (1); Frégonèse, M. (2); Chantrenne, P. (2) 1 - CEA, DEN, DEC/SESC, France 2 - MATEIS, UMR 5510, INSA-Lyon, France
TopFuel2018-A0237	Modeling Out-of-Pile LOCA Tests on High Burnup Fuel Rods. Results of the fourth SCIP Modeling Workshop	Karlsson, J. (1); Beccau, P. (1); Magnusson, P. (1); Janzon, C. (1); Struzik, C. (2); Dostal, M. (3); Porter, I. (4); Jernkvist, L.-O. (5); Grandi, G. (6); Jönsson, C. (7); Zheng, W. (8); Taurines, T. (9); Marchand, O. (9); Shuo, X. (10); Zwicky, H.-U. (11) 1 - Studsvik Nuclear AB, Sweden 2 - CEA Cadarache, France 3 - ÚJV Řež, Czech Republic 4 - Nuclear Regulatory Commission, United States 5 - Quantum Technologies, Sweden 6 - Studsvik Scandpower Inc., United States 7 - Studsvik Scandpower AB, Sweden 8 - China Nuclear Power Technology Research Institute (CNPRI), China 9 - IRS[N]/PSN/SEMIA, Centre d'études de Cadarache, France 10 - Nuclear Power Institute of China (NPIC), China 11 - Zwicky Consulting GmbH, Switzerland
TopFuel2018-A0241	Modeling fission gas release and bubble evolution in UO2 for engineering fuel rod analysis	Pastore, G. (1); Pizzocri, D. (2); Barani, T. (2); Magni, A. (2); Luzzi, L. (2) 1 - Fuel Modeling and Simulation Department, Idaho National Laboratory, United States 2 - Politecnico di Milano, Department of Energy, Nuclear Engineering Division, Italy

Tu 11.00 – 12.40 Parallel Session: Enhanced accident tolerant fuel

TopFuel2018-A0070	Pre-oxidation effect of a zirconium-silicide sputtered surface on boiling performance and oxidation resistance	Lee, G. C. (1); Noh, H. (1); Yeom, H. (2); Jo, H. (2); Kim , M. (1); Kim, T. K. (1); Sridharan, K. (2); Kim, M. H. (1); Park, H. S. (1)

		1 - POSTECH, Korea, Republic of 2 - UW-Madison, United States
TopFuel2018-A0076	Severe Accident Evaluations for Conventional PWR Power Plant with SiC Composite Fuel Cladding	Yamakoshi, Y. (1); Kirimura, K. (1); Kuramoto, H. (1); Noda, T. (1); Yamashita, S. (2); Fukahori, T. (2) 1 - Mitsubishi Heavy Industries, Ltd., Japan 2 - Japan Atomic Energy Agency, Japan
TopFuel2018-A0086	Modelling of an accident tolerant fuel design using FEMAXI6	Foral, S. (1); Katovsky, K. (1); Salamon, D. (2); Rolecek, J. (2); Varmuza, J. (1) 1 - Department of Electrical Power Engineering, Brno University of Technology, Czech Republic 2 - CEITEC - Central European Institute of Technology, Brno University of Technology, Czech Republic
TopFuel2018-A0155	Out of Pile Test with SiC Cladding Simulating LOCA Conditions	Furumoto, K. (1); Watanabe, S. (1); Sato, D. (1); Yamato, M. (2); Okamoto, M. (2); Yamashita, S. (3); Fukahori, T. (3) 1 - Mitsubishi Nuclear Fuel Co. Ltd.,, Japan 2 - Mitsubishi Heavy Industries Ltd.,, Japan 3 - Japan Atomic Energy Agency, Japan
TopFuel2018-A0161	Technology Advancement for Silicon Carbide-Based Enhanced Accident Tolerance Fuel Claddings	Katoh, Y. (1); Koyanagi, T. (1); Petrie, C. (1); Raiman, S. (1); Terrani, K. (1) 1 - Oak Ridge National Laboratory, United States

Tu 11.00 – 12.40 Parallel Session: Advances in designs

TopFuel2018-A0039	Study on the Design of Spacer Grid Based on CFD Technology	Chen, J. (1) 1 - Science and Technology on Reactor System Design Technology Laboratory, Nuclear Power Institute of China, China
TopFuel2018-A0078	Out-of-Pile Verification of TRITON11™ BWR Fuel	Bergmann, U. C. (1); Grönlund, M. (1); Stålbom, M. (1) 1 - Westinghouse Electric Sweden AB, Sweden
TopFuel2018-A0094	Introduction of 300MW Fuel Assembly Spacer Grid Improvement in QinShan Phase-I NPP	Gan, F. (1); Zhu, L. (1); Zhou, Y. (1); Ding, J. (1) 1 - Shanghai Nuclear Engineering Research & Design Institute, China
TopFuel2018-A0101	Commercial introduction and experience with the advanced high iron cladding HiFi in Boiling Water Reactors (BWRs)	Wright, J. (1); Limbäck, M. (1); Owaki, M. (2); Schrire, D. (3) 1 - Westinghouse, Sweden 2 - Nuclear Fuel Industries, Japan 3 - Vattenfall, Sweden

TopFuel2018-A0128	IRRADIATION TEST UNDER ADVANCED PWR CONDITIONS IN THE HALDEN REACTOR AND POST-IRRADIATION EXAMINATION OF FUEL ROD CLADDINGS FROM DIFFERENT ZIRCONIUM ALLOYS	Markelov, V. (1); Novikov, V. (1); Saburov, N. (1); Gusev, A. (1); Kon'kov, V. (1); Dolgov, A. (2); Volkov, B. (3); Andersson, V. (3) 1 - JSC "VNIINM", Russian Federation 2 - JSC "TVEL", Russian Federation 3 - Institute for Energy Technology (IFE), Norway

Tu 12.40 – 13.30 Lunch break

Tu 13.30 – 14.30 Plenary Session : Poster Session

Tu 14.30 – 15.30 Parallel Session: Modelling, analysis and methods

TopFuel2018-A0045	STUDY ON THE EFFECT OF THE CHARACTERISTIC PARAMETER TO IMPROVE THE SEISMIC MARGIN OF FUEL ASSEMBLY	Kim, D.-H. (1); Lee, J.-W. (2) 1 - KHNP CRI, Korea, Republic of 2 - KEPCO E&C, Korea, Republic of
TopFuel2018-A0079	PWR fuel rod vibration simulation analysis for estimating grid-to-rod-fretting (GTRF)	Matías, R. (1); Cantón, R. (1); Jiménez, G. (2) 1 - ENUSA Industrias Avanzadas, S.A., S.M.E, Spain 2 - Universidad Politécnica de Madrid, Spain
TopFuel2018-A0210	FRAMATOME'S STATE-OF-THE-ART CFD METHODOLOGIES FOR INDUSTRIAL APPLICATIONS TO NUCLEAR REACTORS	Dumond, J. (1); Rehm, M. (1); Hatman, A. (2); Pacull, J. (3); Charlot, L. (2) 1 - Framatome GmbH, Germany 2 - Framatome Inc, United States 3 - Framatome SAS, France

Tu 14.30 – 15.30 Parallel Session: Operation and experiences

TopFuel2018-A0037	BWR Failed Fuel Rod Behavior Simulation by FEMAXI-6	Chiu, W.-J. (1); Tseng, C.-C. (1) 1 - Institute of Nuclear Energy Research, Taiwan
TopFuel2018-A0107	Oxide Surface Peeling (OSP) of Advanced Zirconium Cladding Irradiated in PWRs	Pan, G. (1); Atwood, A. (1); Muñoz, A. (2); Limbäck, M. (1); Iyer, J. (1); Fridemo, L. (1); Cai, L. (1); Muñoz-reja, C. (2) 1 - Westinghouse Electric Company, United States 2 - ENUSA Industrias Avanzadas, S.A., Spain
TopFuel2018-A0111	GNF Fuel Reliability and Channel Performance: 2018 Update	Cantonwine, P. (1); Schneider, R. (1); Lin, Y.-P. (1); Mccumbee, P. (1)

		1 - Global Nuclear Fuel Americas, United States

Tu 14.30 – 15.30 Parallel Session: Advances in designs

TopFuel2018-A0180	ADDITIVE MANUFACTURING PAVES THE PATH TO ENHANCED UTILIZATION OF FUEL ASSEMBLIES	Hofbeck, S. (1); Blavius, D. (1) 1 - Framatome GmbH, Germany
TopFuel2018-A0231	Ion irradiation in oxide nanoceramics: on the role of the irradiation spectrum at extreme damage levels	Vanazzi, M. (1); Garcìa ferré, F. (1); Mairov, A. (2); Bassini, S. (3); Utili, M. (3); Tarantino, M. (3); Beghi, M. (4); Sridharan, K. (2); Ceseracciu, L. (5); Serruys, Y. (6); Beck, L. (6); Di fonzo, F. (1) 1 - Center for Nano Science and Technology (CNST) - IIT, Italy 2 - University of Wisconsin-Madison, United States 3 - ENEA , Italy 4 - Politecnico di Milano, Italy 5 - Smart Materials - IIT, Italy 6 - CEA, France
TopFuel2018-A0248	Early Progress on Additive Manufacturing of Nuclear Fuel Materials	Bergeron, A. (1); Crigger, J. (1) 1 - Canadian Nuclear Laboratories, Canada

Tu 15.30 – 16.00 Coffee break

Tu 16.00 – 17.40 Parallel Session: Modelling, analysis and methods

TopFuel2018-A0250	A UK REGULATORY PERSPECTIVE ON COMPUTATIONAL FLUID DYNAMICS FOR NUCLEAR SAFETY ANALYSIS	Downing, J. (1); Jones, J. (1); Tehrani, A. (1); Moscrop, R. (1) 1 - Office for Nuclear Regulation, United Kingdom
TopFuel2018-A0031	Establishment OF Centerline Temperatures in Irradiated Nuclear Fuels	Onder, N. (1); Yatabe, S. (1); Roubtsov, D. (1) 1 - Canadian Nuclear LAboratories, Canada
TopFuel2018-A0044	A PROPOSED NEW FUEL ACCEPTANCE CRITERION TO AUGMENT THE CURRENT SPECIFIED ACCEPTABLE FUEL DESIGN LIMITS FOR NON-LWR REACTOR DESIGNS	Schmidt, J. (1); Drzewiecki, T. (1) 1 - United States Nuclear Regulatory Commission , United States
TopFuel2018-A0122	Improvements of PCMI Criterion for Anticipated Operational Occurrences	Rautenberg, M. (1); Le jolu, T. (2); Bono, M. (2); Garnier, C. (3); Ambard, A. (1); Pouillier, E. (1); Vermoyal, J.-J. (1); Bourlier, F. (3);

		Bossis, P. (2) 1 - EDF, France 2 - CEA, France 3 - FRAMATOME, France
TopFuel2018-A0162	APPLICATION OF THE TRANSURANUS CODE TO HIGH BURN-UP LOCA TESTS IN VIEW OF 10 CFR 50.46c	Cherubini, M. (1); Lampunio, L. (1) 1 - N.IN.E. - Nuclear and Industrial Engineering, Italy

Tu 16.00 – 17.40 Parallel Session: Operation and experiences

TopFuel2018-A0123	IN-REACTOR CREEP BEHAVIOR OF ZIRLO AND OPTIMIZED ZIRLO CLADDING	Muñoz Sicilia, A. (1); Del Rio, I. (1); Muñoz-Reja, C. (1); Pan, G. (2); Long, Y. (2) 1 - ENUSA Industrias Avanzadas S.A., Spain 2 - Westinghouse Electric Company, United States
TopFuel2018-A0136	Westinghouse 17x17 RFA Fuel Performance	O'cain, M. (1); Choithramani Becerra, S. (2); Taborda, F. (3); Helmersson, B. (4); Ryttersson, K. (4); Mckenzie, R. (5) 1 - Westinghouse, United States 2 - ENUSA, Spain 3 - Westinghouse, France 4 - Westinghouse, Sweden 5 - Westinghouse, United Kingdom
TopFuel2018-A0184	EOL Grid Cell Size and Grid-to-Rod Fretting Wear Performance	Kim, Y. H. (1) 1 - Kepco NF, Korea, Republic of
TopFuel2018-A0185	INVESTIGATION OF THE DEVELOPMENT OF FUEL ASSEMBLY BOW IN RINGHALS 3 AND 4	Gabrielsson, P. (1); Schrire, D. (1); Malmberg, M. (2) 1 - Vattenfall Nuclear Fuel AB, Sweden 2 - Ringhals AB, Sweden
TopFuel2018-A0204	SHIZAM WORKSHOP ON THE HYDROGEN PICKUP, MIGRATION AND REDISTRIBUTION IN IRRADIATED ZIRCONIUM ALLOYS	Mader, E. (1); Reitmeyer, M. (2) 1 - Electric Power Research Institute, United States 2 - Exelon Nuclear Fuels, United States

Tu 16.00 – 17.40 Parallel Session: Transient fuel behaviour

TopFuel2018-A0113	Modeling Axial Relocation of Fragmented Fuel during Loss of Coolant Conditions using the BISON Fuel Performance Code	Gamble, K. (1) 1 - Idaho National Laboratory, United States
TopFuel2018-A0125	Application of transient fuel rods performance code FRAPTRAN to thermal and mechanical behavior of a fuel rod during SFP-LOCA scenario	Inagaki, K. (1); Nakamura, K. (1); Sonoda, T. (1) 1 - Central Research Institute of Electric power Industry, Japan

TopFuel2018-A0133	Simulation of Loss-of-Coolant Accidents in the CODEX integral test facility	Hózer, Z. (1); Nagy, I. (1); Vér, N. (1); Farkas, R. (1); Horváth, M. (1); Kis, Z. (1) 1 - Hungarian Academy of Sciences, Centre for Energy Research, Hungary
TopFuel2018-A0134	Post-test examinations on Zr1%Nb cladding after ballooning and burst, high-temperature oxidation and secondary hydriding	Kozsda-barsy, E. (1); Kulacsy, K. (1); Hózer, Z. (1); Horváth, M. (1); Kis, Z. (1); Maróti, B. (1); Nagy, I. (1); Nagy, R. (1); Novotny, T. (1); Perez-feró, E. (1); Pintér-csordás, A. (1); Szentmiklósi, L. (1) 1 - Centre for Energy Research, Hungarian Academy of Sciences, Hungary
TopFuel2018-A0170	Simulation of iron-chrome-aluminum alloy cladding under LOCA conditions using the BISON fuel performance code	Sweet, R. (1); Terrani, K. (2); Wirth, B. (1) 1 - University of Tennessee, United States 2 - Oak Ridge National Laboratory, United States

Tu 19.00 – 23.00 TopFuel 2018 Conference Dinner

Wednesday 3 October 2018

We 8.30 – 10.10 Parallel Session: Modelling, analysis and methods

TopFuel2018-A0023	Progressive Bayesian Calibration of the BISON Fuel Performance Capability	Stevens, G. (1); Matthews, C. (1) 1 - Los Alamos National Laboratory, United States
TopFuel2018-A0082	APPLICATION OF THE POOLSIDE FUEL INSPECTION RESULTS IN THE VALIDATION OF STATISTICAL FUEL ROD PERFORMANCE ANALYSIS	Klouzal, J. (1); Dostál, M. (1); Matocha, V. (1); Hejzlar, J. (1) 1 - UJV Rez, a.s., Czech Republic
TopFuel2018-A0097	ANALYSIS OF FRAPCON-4.0 UNCERTAINTIES PREDICTING PCMI DURING POWER RAMPS	Feria, F. (1); Herranz, L. E. (1) 1 - CIEMAT, Spain
TopFuel2018-A0196	Uncertainty and Sensitivity Analysis of Fuel Performance Assessment of Chromia-Doped Fuel During Large-Break LOCA	Che, Y. (1); Wu, X. (1); Pastore, G. (2); Hales, J. (2); Shirvan, K. (1) 1 - Massachusetts Institute of Technology, United States 2 - Idaho National Laboratory, United States

We 8.30 – 10.10 Parallel Session: Operation and experiences

TopFuel2018-A0205	POOLSIDE INSPECTIONS AT LOVIISA NPP	Lehtinen, I.-V. (1) 1 - Fortum Power and Heat Oy, Finland
TopFuel2018-A0216	Investigation on Grid Width Growth Behaviors in PWR Nuclear Fuels	Jang, Y. K. (1); Kim, Y. H. (1); Kwon, J. T. (1) 1 - KEPCO Nuclear Fuel, Korea, Republic of
TopFuel2018-A0217	End of life inspection of fuel that had experienced transient dryout in Forsmark 2	Aspman, A. (1); Schrire, D. (2) 1 - Forsmarks Kraftgrupp AB, Sweden 2 - Vattenfall Nuclear Fuel AB, Sweden
TopFuel2018-A0246	EOL Characteristics of PLUS7(TM) Fuel Assembly Design	Jeon, S.-Y. (1); Lee, H.-I. (1); Ha, H.-J. (1); Kim, I.-K. K. (1); Kim, Y.-H. (1); Lu, R. (2); Norrell, J. (2) 1 - KEPCO NF, Korea, Republic of 2 - Westinghouse, United States
TopFuel2018-A0251	IMPLEMENTATION OF THE LATEST FRAMATOME UPGRADES IN THE PWR FUEL	Gebhardt, C. (1); D'orio, S. (2); Gentet, G. (3) 1 - Framatome GmbH, Germany 2 - Framatome Inc, United States 3 - Framatome SAS, France

We 8.30 – 10.10 Parallel Session: Used fuel - modelling

TopFuel2018-A0009	A Study to Evaluate the Handling Integrity of Spent Nuclear Fuel for Dry Storage in Korea	Kim, H. K. (1); Lee, J. J. (1); Kim, K. J. (1); Sin, G. C. (1); Lee, S. K. (1); Kim, Y. H. (1) 1 - KEPCO NF, Korea, Republic of

TopFuel2018-A0118	Impact of Fuel-Cladding Bonding on the Response of High Burnup Spent Fuel Subjected to Transportation and Handling Accidents	Lyon, W. (1); Mai, A. (1); Liu, W. (1); Capps, N. (1); Rashid, J. (1); Machiels, A. (2); Waldrop, K. (2) 1 - Structural Integrity Associates, Inc., United States 2 - Electric Power Research Institute, United States
TopFuel2018-A0124	RESPONSE OF THE PELLET-CLADDING SYSTEM DURING SPENT FUEL ROD TRANSPORT ACCIDENTS	Muñoz sicilia, A. (1); Muñoz, J. (1); Quecedo, M. (1); Pan, G. (2); Carrilho, L. (2); Mitchell, D. (2) 1 - ENUSA Industrias Avanzadas S.A., Spain 2 - Westinghouse Electric Company, United States
TopFuel2018-A0129	Mechanical Integrity of Used Nuclear Fuel: From Experimental to Numerical Studies	Vlassopoulos, E. (1); Caruso, S. (2); Grünberg, P. (2); Papaioannou, D. (3); Nasyrow, R. (3); Fongaro, L. (3); Rondinella, V. (3); Somers, J. (3); Gretter, R. (3); Pautz, A. (1); Helfenstein, J. (4); Schwizer, P. (4) 1 - Swiss Federal Institute of Technology in Lausanne (EPFL), Switzerland 2 - National Cooperative for the Disposal of Radioactive Waste (Nagra), Switzerland 3 - European Commission, Joint Research Centre, Directorate for Nuclear Safety and Security, Karlsruhe, Germany 4 - CADFEM (Suisse) AG, Switzerland
TopFuel2018-A0221	Thermal performance evaluation of cylindrical modular type dry storage system for PWR spent nuclear fuel using CFD.	Kim, T. (1); Kim, Y. (1); Chung, S. (1) 1 - Spent Nuclear Technology Team, Central Research Institute, Korea Hydro & Nuclear Power Corporation, Korea, Republic of

We 10.10 – 10.30 Coffee break

We 10.30 – 12.30 Parallel Session: Enhanced accident tolerant fuel

TopFuel2018-A0063	TRIBOLOGICAL CHARACTERISTICS OF CRAL-COATED FUEL CLADDINGS FOR ACCIDENT-TOLERANT FUEL	Lee, Y.-H. (1); Park, J. H. (1); Park, D. J. (1); Jung, Y.-I. (1); Choi, B.-K. (1); Kim, I. H. (1); Kim, H. G. (1) 1 - Korea Atomic Energy Research Institute, Korea, Republic of
TopFuel2018-A0100	Behavior of Cr-coated M5™ claddings during and after high temperature steam oxidation from 800°C up to 1500°C (LOss-	Brachet, J.-C. (1); Guilbert, T. (1); Le saux, M. (1); Bischoff, J. (2); Pouillier, E. (3); Palancher, H. (4);

	of-Coolant Accident & Design Extension Conditions)	Michau, A. (1); Schuster, F. (1) 1 - CEA, Université Paris-Saclay, France 2 - Framatome, France 3 - EDF R&D, France 4 - CEA, Cadarache, France
TopFuel2018-A0126	Fatigue Behavior of Cold Spray-coated Accident Tolerant Cladding	Ševeček, M. (1); Krejčí, J. (2); Shirvan, K. (3); Valach, M. (1); Ballinger, R. (3) 1 - Czech Technical University, Faculty of Nuclear Sciences and Physical Engineering, Czech Republic 2 - UJP Praha, Czech Republic 3 - Massachusetts Institute of Technology, Department of Nuclear Science and Engineering, United States
TopFuel2018-A0149	Benefits of Framatome's e-ATF evolutionary solution: Cr-coated cladding with Cr2O3-doped fuel	Delafoy, C. (1); Bischoff, J. (1); Larocque, J. (1); Attal, P. (1); Gerken, L. (2); Nimishakavi, K. (2) 1 - Framatome, France 2 - Framatome Inc., United States
TopFuel2018-A0191	Sub-stochiometric zirconium carbide (ZrC) for nuclear coating materials, probing the local structure using NMR to determine the effect sub-stoichiometry has on the carbon environments	Rana, D.-S. (1); Farnan, I. (1) 1 - Department of Earth Sciences, University of Cambridge, United Kingdom
TopFuel2018-A0213	Nanocrystalline diamond protects Zr cladding surface against oxygen and hydrogen uptake: Nuclear fuel durability enhancement	Kratochvilova, I. (1); Skoda, R. (2); Ashcheulov, P. (1); Macak, J. (3); Xu, P. (4) 1 - Institute of Physics of the Czech Academy of Sciences, Czech Republic 2 - Czech Technical University in Prague, Czech Republic 3 - University of Chemistry and Technology, Czech Republic 4 - Westinghouse Churchill Site, United States

We 10.30 – 12.30 Parallel Session: Operation and experiences

TopFuel2018-A0018	PERFORMANCE CAPABILITIES OF THE MIR.M1 REACTOR FOR DEMONSTRATING TECHNICAL FEASIBILITY OF ENHANCED ACCIDENT TOLERANT FUEL	Tuzov, A. (1); Izhutov, A. (1); Petelin, A. (1); Burukin, A. (1); Ovchinnikov, V. (1) 1 - JSC "SSC RIAR", Russian Federation
TopFuel2018-A0058	Experience and Opportunities of JSC "INM" Reactor and Experimental Facilities for Fuel Materials Testing	Koshcheev, K. (1); Markov, D. (1); Ilyin, K. (1); Seleznev, E. (1); Shushlebin, V. (1); Beltyukov, I. (1); Kozlov, A. (1); Shabelnikov, E. (1);

		Barybin, A. (1) 1 - Joint Stock Company "Institute of Nuclear Materials", Russian Federation
TopFuel2018-A0089	Experimental and simulation results of Expansion-Due-to-Compression tests with different strain biaxiality ratios on Zircaloy-4 cladding for RIA situation	Zouari, A. (1); Bono, M. (1); Leboulch, D. (1); Lejolu, T. (1); Besson, J. (2); Crepin, J. (2) 1 - French Alternative Energies and Atomic Energy Commission (CEA), France 2 - MinesParistech, France
TopFuel2018-A0095	NON-DESTRUCTIVE PRESSURE MEASUREMENT TECHNIQUE FOR IRRADIATED NUCLEAR FUEL RODS	Montgomery, R. (1); Chatzidakis, S. (1); Cetiner, S. (1); Kisner, R. (1) 1 - Oak Ridge National Laboratory, United States
TopFuel2018-A0137	HYDRIDES CHARACTERIZATION RELEVANTFOR THE MECHANICAL BEHAVIOR OF ZIRCALOY CLADDINGS WITH LINER	Duarte, L. (1); Gong, W. (1); Zubler, R. (1); Bertsch, J. (1) 1 - Laboratory for Nuclear Materials, Nuclear Energy and Safety, Paul Scherrer Institut 5232 Villigen PSI – Switzerland, Switzerland
TopFuel2018-A0140	Bow Evaluations to Support Fuel Assembly Design Improvements	Aleshin, Y. (1); O'cain, M. (1); Gabrielsson, P. (2); Loberg, J. (2) 1 - Westinghouse, United States 2 - Vattenfall Nuclear Fuel, Sweden

We 10.30 – 12.30 Parallel Session: Transient fuel behaviour

TopFuel2018-A0187	Dynamics of hydride precipitation during LOCA quench process can significantly preserve cladding's ductility	Sonnenburg, H.-G. (1); Boldt, F. (1) 1 - Gesellschaft fur Anlagen- und Reaktorsicherheit (GRS)gGmbH, Germany
TopFuel2018-A0226	High Temperature Oxidation of Sponge-based E110 Alloy in Air	Vrbka, P. (1); Krejčí, J. (2); Kabátová, J. (2); Kočí, J. (2); Manoch, F. (2); Vrtílková, V. (2) 1 - Czech Technical University in Prague, Czech Republic 2 - UJP PRAHA a.s., Czech Republic
TopFuel2018-A0239	Research of high-temperature oxidation behavior of E110opt and E110M sponge based zirconium alloys	Linhart, S. (1); Belac, J. (1); Malgin, A. G. (2); Markelov, V. A. (2); Novikov, V. V. (2); Shelepov, I. A. (2); Vrtilkova, V. (3); Krejci, J. (3) 1 - ALVEL, a.s., Czech Republic 2 - SC "VNIINM", Russian Federation 3 - UJP PRAHA a.s., Czech Republic
TopFuel2018-A0020	THE U. S. NUCLEAR REGULATORY COMMISSION'S STRATEGY FOR REVISING FUEL RELATED REGULATIONS AND GUIDANCE	Clifford, P. (1) 1 - U.S. Nuclear Regulatory Commission, United States
TopFuel2018-	Mechanical behavior of as-fabricated	Jailin, T. (1); Tardif, N. (2);

A0041	Zircaloy-4 claddings under the simulated thermo-mechanical post-DNB conditions of a Reactivity Initiated Accident (RIA)	Desquines, J. (1); Coret, M. (3); Baietto, M.-C. (2); Breville, T. (4); Chaudet, P. (2); Georgenthum, V. (1) 1 - Institut de Radioprotection et de Sûreté Nucléaire (IRSN), France 2 - Université de Lyon, France 3 - GeM (UMR 6183), École Centrale de Nantes, France 4 - ATYS Consulting Group, France
TopFuel2018-A0051	ANISOTHERMAL BEHAVIOUR OF UNIRRADIATED CWSR ZIRCALOY-4 FUEL CLADS UNDER RIA CONDITIONS	Chaieb, A. (1); Mozzani, N. (1); Köster, A. (2); Parrot, A. (1); Ambard, A. (1); Crepin, J. (2) 1 - EDF, Electricité de France, Département Matériaux et Mécanique des Composants, France 2 - Centre des Matériaux, France

We 12.30 – 13.30 Lunch break

We 13.30 – 15.30 Parallel Session: Enhanced accident tolerant fuel

TopFuel2018-A0220	Inner surface protection of nuclear fuel cladding, towards a full-length treatment by an optimized DLI-MOCVD coating process	Michau, A. (1); Gazal, Y. (2); Maury, F. (2); Schuster, F. (3); Boichot, R. (4); Pons, M. (4); Brachet, J.-C. (5); Monsifrot, E. (6) 1 - Den–Service d'Etudes Analytiques et de Réactivité des Surfaces (SEARS), CEA, Université Paris-Saclay, France 2 - CIRIMAT, CNRS/INPT/UPS, France 3 - CEA Cross-Cutting program on Materials and Processes Skills, France 4 - University Grenoble Alpes, SIMAP, CNRS, France 5 - Den–Service de Recherches Métallurgiques Appliquées (SRMA), CEA, Université Paris-Saclay, France 6 - DEPHIS, France
TopFuel2018-A0233	Experimental Behaviour of Chromium Based Coatings	Krejčí, J. (1); Cvrček, L. (2); Šutta, P. (3); Bublíková, P. (4); Ševeček, M. (5); Kabátová, J. (1); Kočí, J. (1); Manoch, F. (1) 1 - UJP PRAHA a.s., Czech Republic 2 - Faculty of Mechanical Engineering, Czech Technical University in Prague, Czech Republic 3 - University of West Bohemia, New Technologies - Research Centre, Pilsen, Czech Republic

		4 - Research Centre Řež, Husinec – Řež, Czech Republic 5 - Faculty of Nuclear Science and Engineering, Czech Technical University in Prague, Czech Republic
TopFuel2018-A0042	Machining induced fissures in relation microstrucure of uranium silicide fuel pellets	Wagner, A. R. (1); Harp, J. M. (1) 1 - Idaho National Laboratories, United States
TopFuel2018-A0048	UO2-U3Si2 hybrid ceramic fuel development for unmanned load-following operation of small modular reactor	Ahn, J. (1); Kim, G. (1); Ahn, S. (1) 1 - Department of Nuclear Engineering, Ulsan National Institute of Science and Technology, Korea, Republic of
TopFuel2018-A0090	Progress in the Development of High Density Fuels for Enhanced Accident Tolerance	Goddard, D. (1); Paul, J. (1); Logsdon, R. (1); Vernon, E. (2); Buckley, J. (3); Abram, T. (3); Rennie, S. (4); Lawrence-bright, E. (4); Harding, L. (4); Springell, R. (4) 1 - National Nuclear Laboratory, United Kingdom 2 - National Nuclear Laboratory, Chadwick House, United Kingdom 3 - University of Manchester, School of Mechanical, Aerospace and Civil Engineering, United Kingdom 4 - University of Bristol Interface Analysis Centre, HH Wills Physics LaboratoryUnited Kingdom
TopFuel2018-A0112	U3Si2 Developments in Falcon V1 at PSI	Cozzo, C. (1); Khvostov, G. (1) 1 - Laboratory for Reactor Physics and Thermal-Hydraulics Paul Scherrer Institut, Switzerland

We 13.30 – 15.30 Parallel Session: Operation and experiences

TopFuel2018-A0159	Accelerated Irradiation Testing of Miniature Nuclear Fuel and Cladding Specimens	Petrie, C. (1); Koyanagi, T. (1); Howard, R. (1); Field, K. (1); Burns, J. (1); Terrani, K. (1) 1 - Oak Ridge National Laboratory, United States
TopFuel2018-A0172	Causes of Increased Corrosion and Hydrogen Uptake of Zircaloy-2 Cladding at High Burnups – A Comparative Study of the Microstructure and Chemical Composition of a 3 Cycle and a 9 Cycle Cladding	Baris, A. (1); Grabherr, R. (1); Schäublin, R. (2); Chiu, Y.-L. (3); Evans, H. E. (3); Ammon, K. (4); Limbäck, M. (5); Abolhassani, S. (1) 1 - Paul Scherrer Institut, Switzerland 2 - ETH Zürich, Switzerland 3 - University of Birmingham, United Kingdom 4 - Kernkraftwerk Leibstadt, Switzerland 5 - Westinghouse Electric Sweden AB, Sweden
TopFuel2018-	PRE-EXISTING SURFACE SCRATCHES	Carling, K. (1); Tengstrand, O. (2);

A0186	PROMOTING FLAKING OF SHADOW CORROSION ON BWR CLADDING	Alvarez, A.-M. (2); Schrire, D. (3) 1 - Ringhals AB, SE-43285 Väröbacka, Sweden 2 - Studsvik Nuclear AB, SE-61182 Nyköping, Sweden 3 - Vattenfall Nuclear Fuel, SE-16992 Stockholm, Sweden

TopFuel2018-A0211	Estimation of hydrogen in Zircaloy using multi frequency eddy current	Beale, J. (1); Yoon, B. (1) 1 - EPRI, United States
TopFuel2018-A0138	Oxidation and hydrogen pickup properties of Zircaloy cladding upon deposition of platinum nanoparticles in boiling water reactor environment	Rowthu, S. (1); Grundler, P. V. (1); Ritter, S. (1); Helmerson, B. (2); Oliver, L. (2) 1 - Paul Scherrer Institut, Switzerland 2 - Westinghouse Electric Sweden AB, Sweden

We 13.30 – 15.30 Parallel Session: Transient fuel behavior

TopFuel2018-A0081	Evaluation of the consequences of fuel dispersion and interaction with coolant following a cladding failure induced by a RIA	Ruyer, P. (1); Zhou, Y. (1); Abbate, A. (1); Zou, Z. (1); Aussillous, P. (2); Rulliere, R. (3); Haberschill, P. (3) 1 - Institut de Radioprotection et de Sûreté Nucléaire (IRSN), PSN-RES, SEMIA, LIMAR, France 2 - Aix-Marseille Univ, CNRS, IUSTI, Marseille,, France 3 - Univ. Lyon, CNRS, INSA-Lyon, Université Claude Bernard Lyon 1, CETHIL UMR5008,, France
TopFuel2018-A0168	The TREAT Experiment Legacy Supporting LWR Fuel Technology	Jensen, C. (1); Woolstenhulme, N. (1); Wachs, D. (1) 1 - Idaho National Laboratory, United States
TopFuel2018-A0208	Consequences of leaking fuel rod failure during RIA transients	Bernaudat, C. (1); Delplace, J. (1); Lafon, P. (2); Antoinat, L. (2) 1 - Electricité de France, DIPNN/DT, 19 rue Pierre Bourdeix, CS 80323, F-69363 Lyon Cedex 07, France 2 - Electricité de France, R&D/ERMES, 7 Bd Gaspard Monge, F-91120 Palaiseau, France
TopFuel2018-A0209	Updated RIA criteria in France	Bernaudat, C. (1); Kececioglu, A. (2); Billat, H. (1); Vermoyal, J.-J. (1); Waeckel, N. (1) 1 - Electricité de France, DIPNN/DT, 19 rue Pierre Bourdeix, CS 80323, F-69363 Lyon Cedex 07, France 2 - Electricité de France, R&D/MMC, F-77250 Orvanne , France

TopFuel2018-A0144	Oxidation in air/steam mixtures of pre-oxidized Zircaloy-4 in the 750 - 950°C temperature range: experimental data and modeling for ASTEC code application	Gestin, M. (1); Coindreau, O. (2); Pijolat, M. (1); Favergeon, L. (1); Duriez, C. (2) 1 - Ecole Nationale Supérieure des Mines de St Etienne, France 2 - Institut de Radioprotection et de Sûreté Nucléaire, France
TopFuel2018-A0171	Oxidation test of simulated BWR fuel assembly in a high temperature steam starvation condition	Yamazaki, S. (1); Pshenichnikov, A. (1); Hai, P. (1); Sakamoto, K. (2); Tokushima, K. (3); Aomi, M. (3); Nagae, Y. (1); Kurata, M. (1) 1 - Japan Atomic Energy Agency, Japan 2 - Nippon Nuclear Fuel Development Co., Ltd., Japan 3 - Global Nuclear Fuel-Japan Co., Ltd., Japan

Poster
Operation and experience

TopFuel2018-A0066	Using Laser remote heating to simulate extreme thermal loads on nuclear fuels during annealing tests	Vidal, T. (1); Gallais, L. (1); Faucheux, J. (2); Capdevilla, H. (2); Pontillon, Y. (2) 1 - Aix Marseille Univ, CNRS, Centrale Marseille, Institut Fresnel, Marseille, France, France 2 - CEA, DEN/CAD/DEC/SA3E, Laboratoire d'Analyse de la Migration des Radioelements, 13108 Saint-Paul-lez-Durance, France, France
TopFuel2018-A0092	ULTRASONIC SYSTEM FOR NUCLEAR FUEL GEOMETRICAL CHANGES EVALUATION	Kopeć, M. (1); Malá, M. (1); Klouzal, J. (2) 1 - Centrum výzkumu Řež s.r.o. Hlavní 130, 250 68 Husinec-Řež, Czech Republic 2 - ÚJV Řež, a. s. Hlavní 130, Řež, 250 68, Husinec, Czech Republic
TopFuel2018-A0120	Development of digital X-ray radiography system for BWR control blade inspection	Yoon, B. (1); Beale, J. (1); Mervin, B. (1); Daum, R. (1) 1 - EPRI, United States
TopFuel2018-A0132	The experience of core design management of 24-18 month hybrid model in Republic of Korea	Lee, J. (1); Song, H. (1) 1 - KEPCO Nuclear Fuel Company, Korea, Republic of
TopFuel2018-A0179	FRAMATOME'S DESIGN AND ANALYSIS METHODS FOR PROTECTING BWR FUEL AGAINST DRYOUT UNDER NORMAL OPERATION AND UPSET CONDITIONS	Dumond, J. (1); Greene, K. (2); Rost, M. (1) 1 - Framatome GmbH, Germany 2 - Framatome Inc., United States
TopFuel2018-A0201	Synchrotron X-ray study on Determination of Zirconium Oxide Stoichiometry in Hydrogenated Water	Kim, T. (1); Kim, S. (1); Yoo, S. C. (1); Ham, J. (1); Lee, Y. (1); Kim, J. H. (1) 1 - Ulsan National Institute of Science and Technology, Korea, Republic of
TopFuel2018-A0228	A response to increasing flexibility demand: AUTUNITE application, an AUtomatic Tool for UNplanned Incident Technical Evaluation	Druenne, H. (1); Demeyer, D. (1) 1 - Tractebel Engie, Belgium
TopFuel2018-A0245	ARGOS - Implementation of Framatome's Universal Core Monitoring System on the European Market	Krieger, T. (1); Merk, S. (2); Paul, T. (1); Meyer, L. (3) 1 - Framatome GmbH, Paul-Gossen-Strasse 100 91052 Erlangen , Germany 2 - AREVA INC, 3315 Old Forest Road OF-12 Lynchburg, Va. 24501 , United States 3 - Kernkraftwerk Gösgen-Däniken AG,

		Kraftwerkstrasse CH-4658 Däniken , Switzerland

Poster Used fuel

TopFuel2018-A0003	A CFD analysis of thermal behavior in passive heat removal system of dry storage cask under different conditions	Kang, G.-U. (1); Yook, D.-S. (1); Cha, J.-H. (1) 1 - Korea Institute of Nuclear Safety, Korea, Republic of
TopFuel2018-A0025	A SIF THRESHOLD MODEL OF DHC FOR ZIRCONIUM CLADDING	Chen, L. (1); Liu, L. (1); Song, X. (1); Pang, H. (1) 1 - Nuclear Power Institute of China, China
TopFuel2018-A0035	Non-standard crack analysis of high-burnup spent fuel cladding with radial-hydride	Shen, T. (1); Zhu, S. (1) 1 - China Nuclear Power Engineering Co.,LTD., China
TopFuel2018-A0047	Development of regulatory requirements for safety information for spent nuclear fuel characteristics evaluation in Korea	Yook, D. (1); Kang, G.-U. (1); Go, A. (1) 1 - Korea Institute of Nuclear Safety, Korea, Republic of
TopFuel2018-A0049	Ductility of pre-hydrided Zircaloy-4 cladding after creep deformation	Hong, J.-D. (1); Kim, E. (1); Kook, D.-H. (1) 1 - Korea Atomic Energy Research Institute, Korea, Republic of
TopFuel2018-A0056	STAR-CCM+ simulation of a spent fuel dry cask external cooling by natural convection	Benavides, J. (1); Jimenez, G. (1); Galbán, M. (2); Lloret, M. (2) 1 - Universidad Politécnica de Madrid, Spain 2 - ENUSA Industrias Avanzadas S.A. S.M.E, Spain
TopFuel2018-A0077	The effect of final heat treatment at fabrication on the terminal solid solubility of hydrogen in Zry-4	Yamauchi, A. (1); Amaya, M. (1) 1 - Japan Atomic Energy Agency, Japan
TopFuel2018-A0091	THERMAL ANALYSIS OF QM400 DRY STORAGE MODULE WITHOUT THERMAL BAFFLES	Zhu, L. (1); Gan, F. (1) 1 - Shanghai Nuclear Engineering Research & Design Institute, China
TopFuel2018-A0099	IMPACT OF HYDRIDES REORIENTATION ON ZIRCALOY FATIGUE PROPERTIES	Gong, W. (1); Duarte, L. (1); Zubler, R. (1); Mille, M. (2); Bertsch, J. (1) 1 - Laboratory for Nuclear Materials, Nuclear Energy and Safety, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland 2 - EPF Graduate School of Engineering, 21 Bd Berthelot, 34000 Montpellier, France
TopFuel2018-A0103	Mechanical loading tests on a 47 GWd/tHM irradiated LWR fuel rod	Vlassopoulos, E. (1); Caruso, S. (2); Nasyrow, R. (3); Gretter, R. (3); Fongaro, L. (3); Somers, J. (3); Rondinella, V. (3); Papaioannou, D.

		(3) 1 - EPFL, Switzerland 2 - Nagra, Switzerland 3 - European Commission JRC-KA, Germany
TopFuel2018-A0146	Fuel Cladding performance Analysis of Maanshan Nuclear Power Plant Spent Fuel Pool Using TRACE/FRAPTRAN/SNAP	Chiang, Y. (1); Li, W.-Y. (1); Li, S.-Y. (1); Wang, J.-R. (1); Chen, S.-W. (1); Shih, C. (1) 1 - National Tsing Hua University, Taiwan
TopFuel2018-A0173	QUIVERS FOR DAMAGED FUEL RODS – DISPOSAL IN CASTOR® V CASKS	Cebula, W. (1); Funke, T. (1); Di paola, O. (1); Hüggenberg, R. (1) 1 - GNS Gesellschaft für Nuklear-Service mbH, Germany
TopFuel2018-A0175	Spent Fuel Dry Storage Cast Thermal Modeling Round Robin	Csontos, A. (1); Durbin, S. (2); Hanson, B. (3); Waldrop, K. (1) 1 - Electric Power Reserach Institute, United States 2 - Sandia National Laboratories, United States 3 - Pacific Northwest National Laboratory, United States
TopFuel2018-A0188	Temperature calculations in spent nuclear fuel cask using COBRA-SFS	Galbán barahona, M. (1); Lloret llorca, M. (1); Benavides rodríguez, J. (2); Jiménez varas, G. (2) 1 - ENUSA Industrias Avanzadas S.A., S.M.E, Spain 2 - Universidad Politécnica de Madrid (UPM) - Escuela Técnica Superior de Ingenieros Industriales., Spain
TopFuel2018-A0189	OVERVIEW OF EPRI RESEARCH ON EVALUATION OF LONG TERM PERFORMANCE OF NEUTRON ABSORBER MATERIAL PERFORMANCE IN SPENT FUEL POOLS	Akkurt, H. (1) 1 - EPRI, United States
TopFuel2018-A0190	GICOM: A TOOL FOR THE SPENT NUCLEAR FUEL INTEGRAL KNOWLEDGE MANAGEMENT	Viñas peña, P. (1); Lloret llorca, M. (1) 1 - ENUSA Industrias Avanzadas S.A., S.M.E , Spain
TopFuel2018-A0215	Development of smart material-based structural integrity monitoring sensors for detecting the fracture sign in dry storage canisters	Kim, Y. (1); Yoon, S. (2); Kim, T. (1) 1 - Spent Nuclear Technongy Team, Central Research Institute, Korea Hydro & Nuclear Power Corporation, Korea, Republic of 2 - Department of Mechanical Enginerering, Inha University, Korea, Republic of

Poster Advances in designs, materials and manufacturing

TopFuel2018-	The Main Principles Of Irradiated Dispersion	Kulakov, G. (1); Vatulin, A. (1);

A0006	Type Fuel For Floating Power Unit Behavior	Ershov, S. (1); Konovalov, Y. (1); Morozov, A. (1); Sorokin, V. (1); Fedotov, V. (1); Shishin, V. (2); Ovchinnikov, V. (2); Sheldyakov, A. (2) 1 - Stock Company «A.A. Bochvar High-Technology Research Institute of Inorganic Materials», Moscow, Russia, Russian Federation 2 - Stock Company «State Scientific Center of Russian Federation - Research Institute of Atomic Reactors», Dimitrovgrad, Rus, Russian Federation
TopFuel2018-A0007	Study Of Modified Zirconium Alloys Claddings After Irradiation	Kulakov, G. (1); Vatulin, A. (1); Konovalov, Y. (1); Kosaurov, A. (1); Nikulina, A. (1); Peregud, M. (1); Shishin, V. (2); Sheldyakov, A. (2); Ovchinnikov, V. (2) 1 - Stock Company «A.A. Bochvar High-Technology Research Institute of Inorganic Materials», Moscow, Russia, Russian Federation 2 - Stock Company «State Scientific Center of Russian Federation - Research Institute of Atomic Reactors», Dimitrovgrad, Rus, Russian Federation
TopFuel2018-A0024	Study on Secondary Roll Granulation Process of Uranium Dioxide Powder	Peng, X. (1) 1 - CNNC Jianzhong Nuclear Fuel Co.,Ltd., China
TopFuel2018-A0055	Evaluation of Zr-based protective layers on advanced nuclear fuel forms	Savchenko, A. (1); Maranchak, S. (1) 1 - A.A. Bochvar Institute (VNIINM), Russian Federation
TopFuel2018-A0085	Microstructural evolution and void swelling of a 9Cr ferritic-martensitic steel after 3.5 MeV self ion irradiation to 480 dpa	Lee, M. (1); Jung, Y. (1); Kim, G. (1); Ahn, S. (1) 1 - Ulsan national institute of science and technology(UNIST), Korea, Republic of
TopFuel2018-A0143	Improvements on nuclear fuel manufacturing for reliable performance in the reactor	Romero, Y. (1); Herrero, J. Á. (1); Arana, I. (1); Aulló, M. (1) 1 - ENUSA INDUSTRIAS AVANZADAS, S.A., Spain
TopFuel2018-A0227	DEVELOPMENT OF COBALT ADJUSTER ROD FOR CO-60 MEDICAL RADIOACTIVE SOURCES PRODUCTION IN CHINA CANDU-6 REACTOR	Zhu, L. (1); Ding, J. (1); Yu, D. (1); Tang, C. (1); Li, H. (1); Qin, H. (1); Gan, F. (1) 1 - Shanghai Nuclear Engineering Research & Design Institute, China
TopFuel2018-	Diffusion barrier nanoceramic coatings for	Vanazzi, M. (1); Iadicicco, D. (1);

A0232	future generation nuclear systems	Paladino, B. (2); Beghi, M. (2); Bassini, S. (3); Utili, M. (3); Di fonzo, F. (1) 1 - Center for Nano Science and Technology (CNST) - IIT, Italy 2 - Politecnico di Milano, Italy 3 - ENEA, Italy
TopFuel2018-A0234	Multilayered Metal-Ceramic Coatings for Accident Tolerant Fuel	Vanazzi, M. (1); Frankberg, E. (1); Cabrioli, M. (2); Peng, X. (3); Romero, J. (3); Partezana, J. (3); Di fonzo, F. (1) 1 - Center for Nano Science and Technology (CNST) - IIT, Italy 2 - Politecnico di Milano, Italy 3 - Westinghouse Electric Company, United States

Poster Transient fuel behaviour

TopFuel2018-A0069	SAFETY OBJECTIVES PROPOSED FOR CANDU FUEL IN DESIGN EXTENSION CONDITIONS	Suk, H. C. (1); Couture, M. (1) 1 - Canadian Nuclear Safety Commission, Canada
TopFuel2018-A0108	Viability of Conducting Prototypic LOCA testing in a Natural Circulation Loop at INL's TREAT Reactor	Kamerman, D. (1); Woolstenhulme, N. (1); Wachs, D. (1); Folsom, C. (2) 1 - Idaho National Laboratory, United States 2 - Utah State University, United States
TopFuel2018-A0139	CAESIUM-MOLYBDATE EQUILIBRIA – A SPECIATION MODEL OF FISSION PRODUCTS Mo, Cs AND I RELEASED FROM NUCLEAR FUELS	Riglet-martial, C. (1) 1 - Atomic Energy and Alternative Energy Commision CEA/DEN/DEC/SESC, France
TopFuel2018-A0166	Status and Plans of RIA Model Development for the BISON Code	Folsom, C. (1); Jensen, C. (1); Woolstenhulme, N. (1); Williamson, R. (1); Wachs, D. (1) 1 - Idaho National Laboratory, United States
TopFuel2018-A0167	BISON Demonstration of Pressurized Water Reactor Large Break Loss of Coolant Accident Capability	Gardner, R. (1); Williamson, R. (1) 1 - Idaho National Laboratory, United States
TopFuel2018-A0242	Transient Testing Strategy for Accident Tolerant Fuels	Wachs, D. (1); O'brien, R. (1); Jensen, C. (1); Woolstenhulme, N. (1); Kamerman, D. (1) 1 - Idaho National Laboratory, United States

Poster Modelling, analysis and methods

TopFuel2018-	FUEL ASSEMBLY BOW EVALUATIONS WITH	Aleshin, Y. (1); Brewster, R. (1)

A0002	COMPUTED HYDRAULIC FORCES	1 - Westinghouse Electric Company, United States
TopFuel2018-A0004	The Research of AP1000 Rod Drop Accident Analysis	Xu, L. (1) 1 - Nuclear Power Institute of China, China
TopFuel2018-A0005	Overtemperature ΔT Set-point Optimization Analysis	Wang, Y. (1) 1 - Nuclear Power Institute of China, China
TopFuel2018-A0013	Preliminary study on zirconium irradiation growth behavior modelling based on neural networks	Miao, Y. (1); Liu, Z. (2); Zhang, K. (2); Chen, P. (2) 1 - Science and Technology on Reactor System Design Technology Laboratory, Nuclear Power Institute of China, Chengdu; 61021, China 2 - Nuclear Power Institute of China, China , China
TopFuel2018-A0019	Atomistic insights into the motion of screw dislocations in uranium dioxide	Lunev, A. (1); Starikov, S. (1); Tseplyaev, V. (1) 1 - Joint Institute for High Temperatures of the Russian Academy of Sciences, Russian Federation
TopFuel2018-A0027	REACTIVITY INITIATED ACCIDENT ANALYSIS METHOD USING MULTI-PHYSICS COUPLED CODE SYSTEM BASED ON RAST-K v2.0	Shin, H. C. (1); Kim, H. (2); Park, J. (2); Lee, D. (2) 1 - Korea Hydro & Nuclear Power Corporation, Korea, Republic of 2 - Department of Nuclear Engineering, Ulsan National Institute of Science and Technology, Korea, Republic of
TopFuel2018-A0032	AN APPROACH TO THE SIMULATION OF THE BEHAVIOUR OF ACCIDENT TOLERANT FUELS	Marino, A. (1); Furlano, L. (1); Losada, E. (1); Demarco, G. (1) 1 - Comisión Nacional de Energía Atómica, Argentina
TopFuel2018-A0057	Study on the large deformation module in FRAPTRAN 2.0	Lee, S.-U. (1); Kim, H.-C. (1); Yang, Y.-S. (1); Shin, C.-H. (1) 1 - Korea Atomic Energy Research Institute, Korea, Republic of
TopFuel2018-A0065	Development of experimental platform for analysis and imaging of fuel pellets heated at high temperature	Vidal, T. (1); Gallais, L. (1); Burla, R. (1); Martin, F. (2); Capdevilla, H. (2); Pontillon, Y. (2) 1 - Aix Marseille Univ, CNRS, Centrale Marseille, Institut Fresnel, Marseille, France, France 2 - CEA, DEN/CAD/DEC/SA3E, Laboratoire d'Analyse de la Migration des Radioelements, 13108 Saint-Paul-lez-Durance, France, France
TopFuel2018-A0067	Extension of the TRANSURANUS fuel performance code for uncertainty/sensitivity analyses and its application to design-based accidents	Schubert, A. (1); Soti, Z. (1); Van Uffelen, P. (1) 1 - European Commission, Joint Research Centre, Directorate G - Nuclear Safety and

	(DBA)	Security, Germany
TopFuel2018-A0071	EXTENDED VALIDATION OF ENGINEERING MODELS FOR EXPRESS-METHOD OF BURNUP EVALUATION OF WWER 1000 FUEL ELEMENTS	Vilkhivskaya, O. (1); Likhanskii, V. (1); Afanaseva, E. (1); Sorokin, A. (1) 1 - SC "SRC RF TRINITI", Russian Federation
TopFuel2018-A0087	Feasibility study of potential utilization of LFA for nuclear material accountancy: Thermal conductivity measurement of non-stoichiometric CeO2	Kim, G. (1); Ahn, J. (1); Ahn, S. (1) 1 - Department of Nuclear Engineering, Ulsan National Institute of Science and Technology, Ulju, Ulsan 44919, Korea, Republic of
TopFuel2018-A0088	Comparison study of the standard VVER fuel rod and Dual Cooled annular fuel rod (ATF) during the campaign with use of ABAQUS and MARC	Kuznetsov, A. (1); Chulkin, D. (1); Kashirin, B. (1); Karpyuk, L. (1) 1 - A.A. Bochvar High-technology Research Institute of Inorganic Materials (JSC VNIINM), Russian Federation
TopFuel2018-A0098	Neutronic simulations of the RMB irradiation device benchmark experiment using Serpent Code	Campolina, D. (1); Vieira, T. (1); Vidal, G. (1); Vasconcelos, V. (1); Campagnole, A. (1) 1 - Nuclear Technology Development Center, Brazil
TopFuel2018-A0104	The Extension of the US NRC's Fuel Performance Code FAST for Modeling non-cylindrical ATF and non-LWR Reactor Fuels	Porter, I. (1); Rouson, D. (2); Radhakrishnan, H. (2); Beekman, I. (2) 1 - US NRC, United States 2 - Guidestar Engineering, United States
TopFuel2018-A0117	Using Machine Learning to Improve Fission Gas Release Model Parameters	Johns, J. (1); Geelhood, K. (1) 1 - Pacific Northwest National Laboratory, United States
TopFuel2018-A0127	Application of constrained Gibbs energy minimization to nuclear fuel thermochemistry	Loukusa, H. (1) 1 - VTT Technical Research Centre of Finland Ltd., Finland
TopFuel2018-A0142	Comparison of the thermal expansion behavior of bulk hydrides and hydrides embedded in Zircaloy-4	Cinbiz, M. (1); Hu, X. (1); Kurt, T. (1) 1 - Oak ridge National Laboratory, United States
TopFuel2018-A0150	MULTI-PURPOSE INFORMATION SYSTEM OF ANALYSIS OF NUCLEAR FUEL PERFORMANCE IN CYCLE OF PRODUCTION AND OPERATION	Loktev, I. (1); Volkov, L. (1); Strukov, A. (1); Milchakov, E. (1); Vichodcev, E. (1); Shustov, M. (1) 1 - PAL "NCCP", Russian Federation
TopFuel2018-A0154	Application of BOA version 4.0 to Assess the Effects of Zinc Injection on CIPS Risk	Hussey, D. (1); Young, M. (2); Epperson, K. (3) 1 - Electric Power Research Institute, United States 2 - M Young Engineering, United States 3 - Epperson Engineering, United States

TopFuel2018-A0176	Residual stress/strain analysis in UO2 spent fuel by synchrotron micro-beam X-ray diffraction	Kuri, G. (1); Martin, M. (1); Bertsch, J. (1) 1 - Paul Scherrer Institute, CH 5232 Villigen PSI, Switzerland
TopFuel2018-A0194	USAGE OF ARCADIA CODE SYSTEM FOR NEUTRONIC AND THERMAL-HYDRAULIC CORE ANALYSES TO SUPPORT THE CRUD RISK ASSESSMENT OF A 3-LOOP PLANT	Monti, L. (1); Jones, J. (2); Bildstein, D. (1); Hove, C. (2); Lockamon, B. (2); Steyn, S. (3) 1 - Framatome SAS, France 2 - Framatome Inc. , United States 3 - Eskom Holdings SOC Ltd, South africa
TopFuel2018-A0195	Thermal Conservatism Reduction due to Low Flow in a Dry Storage Canister for Nuclear Spent Fuels	Cha, J.-H. (1); Go, A.-R. (1); Kang, G.-U. (1); Yook, D.-S. (1) 1 - Korea Institute of Nuclear Safety, Korea, Republic of
TopFuel2018-A0200	Dislocation bias in bcc Fe based on defect dynamics	Xu, H. (1) 1 - The University of Tennessee Knoxville, United States
TopFuel2018-A0235	Successful deployment of FRAMATOME advanced PWR Codes and Methods worldwide	Bigot, J. (1); Segard, K. (2); Brock, R. (2); Parker, J. (2); Curca-tivig, F. (3); Kuch, S. (3) 1 - Fuels France, Framatome, France 2 - US Fuels, Framatome, United States 3 - Fuels Germany, Framatome, Germany

Poster Enhanced accident tolerant fuel

TopFuel2018-A0012	Analysis of Irradiation Matrix for the Japanese FeCrAl-ODS Test Fuel Rods Irradiations at the Halden Reactor using FEMAXI-7 code	Susuki, N. (1); Yamaji, A. (1); Kusagaya, K. (2); Sakamoto, K. (3); Yamashita, S. (4) 1 - Waseda University, Japan 2 - Global Nuclear Fuel-Japan, Japan 3 - Nippon Nuclear Fuel Development, Japan 4 - Japan Atomic Energy Agency, Japan
TopFuel2018-A0014	The influence of SiC volume fraction and different grain morphology on thermal physical properties of SiC enhanced ATF pellet	Mazhao, D. (1); Liu, T. (1); Xue, J. (1); Li, R. (1); Huang, H. (1) 1 - China Nuclear Power Technology Research Institute(CGN), China
TopFuel2018-A0026	Steam oxidation of SiC at temperatures above 1600^{0}C	Pham, V. H. (1); Nagae, Y. (1); Kurata, M. (1) 1 - Japan Atomic Energy Agency, Collaborative Laboratories for Advanced Decommissioning Science, Japan
TopFuel2018-A0028	Preliminary research on the irradiation - thermal -mechanical coupling behavior simulation method of TRISO particle fuel	Tang, C. (1); Jiao, Y. (1); Zhou, Y. (1); Li, Y. (1); Chen, P. (1) 1 - Science and Technology on Reactor System Design Technology Laboratory,

		Nuclear Power Institution of China, , China
TopFuel2018-A0052	Overcoming sensitization in welds using FeCrAl alloys.	Gupta, V. K. (1); Field, K. G. (2); Larsen, M. (1); Rebak, R. B. (1) 1 - GE Global Research, United States 2 - Oak Ridge National Laboratory, United States
TopFuel2018-A0062	Development Status of Microcell UO2 Pellet with Enhanced Thermal Conductivity for ATF	Kim, D.-J. (1); Kim, K. S. (1); Kim, D.-S. (1); Oh, J. S. (1); Kim, J. H. (1); Jeon, S. C. (1); Yang, J. H. (1) 1 - Korea Atomic Energy Research Institute, Korea, Republic of
TopFuel2018-A0073	Welding Technology R&D of Japanese Accident Tolerant FeCrAl-ODS fuel claddings for BWRs (2)	Kimura, A. (1); Yuzawa, S. (1); Yabuuchi, K. (1); Sakamoto, K. (2); Hirai, M. (2); Ukai, S. (3); Yamaji, A. (4); Kusagaya, K. (5); Kondo, T. (6); Yamashita, S. (7) 1 - Kyoto University, Japan 2 - Nippon Nuclear Fuel Development, Japan 3 - Hokkaido University, Japan 4 - Waseda University, Japan 5 - Global Nuclear Fuel – Japan, Japan 6 - Hitachi GE, Japan 7 - Japan Atomic Energy Agency, Japan
TopFuel2018-A0083	Effect of ion irradiation on the corrosion of FeCrAl-ODS in high temperature water simulating BWR conditions	Sato, T. (1); Nakahara, Y. (1); Ueno, F. (1); Sakamoto, K. (2); Yamashita, S. (1) 1 - Japan Atomic Energy Agency, Japan 2 - Nippon Nuclear Fuel Development, Co., Ltd., Japan
TopFuel2018-A0102	Behavior of Chromium Coated M5 Claddings upon thermal ramp tests under internal pressure (LOss-of-Coolant Accident Conditions)	Brachet, J.-C. (1); Dumerval, M. (1); Palancher, H. (2); Bischoff, J. (3); Pouillier, E. (4) 1 - CEA, Université Paris-Saclay, France 2 - CEA, Cadarache, France 3 - Framatome, France 4 - EDF R&D, France
TopFuel2018-A0115	Modeling and Assessment of EBR-II Fuel with the FAST Fuel Performance Code	Geelhood, K. (1); Porter, I. (2) 1 - Pacific Northwest National Laboratory, United States 2 - United States Nuclear Regulatory Commission, United States
TopFuel2018-A0148	Chemical compatibility between potential U3Si2 fuel and SiC-based cladding: Experimental and first principles approach	Adorno lopes, D. (1); Kocevski, V. (1); Wilson, T. (1); Moore, E. (1); Besmann, T. (1); White, J. (2) 1 - University of South Carolina, United States 2 - Los Alamos National Laboratory, United States

TopFuel2018-A0153	What Should Be The Objective Of Accident Tolerant Fuel?	Lahoda, E. (1); Oelrich, R. (1); Ray, S. (1); Karoutas, Z. (1); Boylan, F. (1); Xu, P. (1); Romero, J. (1); Shah, H. (1) 1 - Westinghouse Electric Co. LLC, United States
TopFuel2018-A0158	Spark Plasma Sintering of HfC and HfB2 Accident Tolerant Control Materials	Tulenko, J. (1); Subhash, G. (1); Walton, L. (2) 1 - University of Florida, United States 2 - NovaTech, United States
TopFuel2018-A0164	Thermochemical modeling of U3Si2 compatibility with proposed ferritic (FeCrAlY) cladding under irradiation	Moore, E. (1); Kocevski, V. (1); Adorno lopes, D. (1); Wilson, T. (1); Besmann, T. (1) 1 - UNIVERSITY OF SOUTH CAROLINA, United States
TopFuel2018-A0169	Gap conductance model development for new fuel and/or cladding materials	Ban, H. (1); Zhang, L. (1); Song, Z. (1) 1 - University of Pittsburgh, United States
TopFuel2018-A0181	"Irradiation performance of composite UO2-BeO fuel testing in HBWR"	Volkov, B. (1); Russin, Y. (2) 1 - Institute for Energy Technology, Norway 2 - Ulba Metallurgigal Plant , Kazakhstan
TopFuel2018-A0193	Experimental Investigation of Cold-Spray Chromium Coating	Shahin, M. (1); Petrik, J. (1); Seshadri, A. (1); Philips, B. (1); Shirvan, K. (1) 1 - Massachusetts Institute of Technology, United States
TopFuel2018-A0207	Characterization of thermal properties of SiCf/SiC composites for enhanced Accident Tolerant Fuel cladding	Duquesne, L. (1); Bischoff, J. (1); Chabretou, V. (1); Delafoy, C. (1); Lorrette, C. (2); Batsale, J.-C. (3); Vignoles, G. L. (4) 1 - Framatome, France 2 - CEA, France 3 - I2M-TREFLE, France 4 - LCTS, France
TopFuel2018-A0214	Fission Gas Behavior of U3Si2 under LWRs Conditions: Experimental and Computational Study	Yacout, A. (1); Miao, Y. (1) 1 - Argonne National Laboratory, United States


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