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System and Facility Design—I

Session Organizer: Lew J. Lommers (JAEA)

Cochairs: Lew J. Lommers (AREVA), Xing Yan (JAEA)

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HTTR-GT/H₂ Test Plant—Design Study on Helium Gas Turbine for the Heat Utilization System 837
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WEDNESDAY, NOVEMBER 9, 2016, 2:50 PM

Fuel Modeling and Simulation

Session Organizer: John D. Hunn (INL)

Cochairs: John D. Hunn (ORNL), Paul A. Demkowicz (INL)

- [Effect of PyC Irradiation-Induced Creep on the Stress of TRISO-Coated Fuel Particles](#) 845
Rong Li, Bing Liu, Chunhe Tang (Tsinghua Univ)
- [Comparison of Silver Predictions using PARFUME with Results from the AGR-2 Irradiation Experiment](#) 853
Blaise P. Collin, Paul A. Demkowicz (INL), Charles A. Baldwin (ORNL), Jason M. Harp (INL), John D. Hunn (ORNL)
- [Modeling and Analysis of Fission Product Transport in the AGR-3/4 Experiment](#) 863
Paul W. Humrickhouse, Blaise P. Collin, Grant L. Hawkes, Jason M. Harp, Paul A. Demkowicz, David A. Petti (INL)

Transient and Accident Analysis Methods and Codes

Session Organizer: Hans David Gougar (INL)

Cochairs: Hans David Gougar (INL), Frederick Reitsma (IAEA)

- [Spectral Analysis of LDV Measurements Inside of the TAMU Air-Cooled Reactor Cavity Cooling System](#) 878
Mark Silberberg, Saya Lee, John Budd, Yassin Hassan (Texas A&M)
- [Numerical Simulation of Break Flows Occuring in the Reactor Cavity Cooling System of a Very High Temperature Reactor using a System CFD Approach](#) 888
C. G. Du Toit (North West Univ), P. G. Rousseau (Univ of Cape Town), J. S. Jun, M.-H. Kim (KAERI)
- [Plant-Wide Simulation Model for Transient Studies on the Xe-100](#) 896
Herman van Antwerpen (North West Univ), Hans Chi, Yvotte Brits, Frikkie Botha (X-Energy LLC)
- [The ATWS Analysis of the HTR-10GT Core Induced by the Earthquake](#) 904
Minggang Lang, Ximing Sun, Yujie Dong (Tsinghua Univ)

System and Facility Design—I I

Session Organizer: Lew J. Lommers (AREVA)

Cochairs: Lew J. Lommers (AREVA), Xing Yan (JAEA)

- [Potential Applications of Industrial Wireless Technologies in the Future HTR](#) 911
Yan Chen, Ni Mo, Guojun Yang, Yan Zhou, Zhengang Shi (Tsinghua Univ)
- [Performance Tests of Helium Circulator under Abnormal Cooling Condition](#) 915
Ping Ye, Gang Zhao, Hong Wang, Jie Wang (Tsinghua Univ)
- [Endurance Test of Helium Circulator for HTR-PM](#) 918
Gang Zhao, Ping Ye, Hong Wang, Jie Wang (Tsinghua Univ)

THURSDAY, NOVEMBER 10, 8:00 AM

Thermal Hydraulics of Key Components—I

Session Organizer: Hans David Gougar (INL)

Cochairs: Yassin A. Hassan (Texas A&M), W. David Pointer (ORNL)

- Thermal-Hydraulic Performance of Printed Circuit Heat Exchangers: CFD Analysis with Experimental Validation 923
Su-Jong Yoon, James O'Brien (INL), Kevin Wegman, Xiaodong Sun (Ohio State)
- Thermal-Hydraulic Performance of a High-Temperature Zigzag-Channel Printed Circuit Heat Exchanger 936
Minghui Chen (Ohio State), James E. O'Brien, Su-Jong Yoon (INL), Richard N. Christensen (Ohio State), Piyush Sabharwall (INL), Xiaodong Sun (Ohio State)
- Thermal Hydraulic Issues of HTGR Helical Tube Once Through Steam Generator: Methods and Applications 945
Xiaowei Li, Xinxin Wu, Xiaowei Luo, Jiaqing Zhao, Yiyang Zhang (Tsinghua Univ)

Industrial Process Heat

Session Organizer: Lew J. Lommers (AREVA)

Cochairs: Michael Andreas Futterer (JRC), Lew L. Lommers (AREVA)

- The Process Heat Applications of HTGR in Petroleum Refining Industry: Adaptability and Economy 952
Chao Fang, Qi Min, Yanran Yang, Yuliang Sun (Tsinghua Univ)
- Non-Electrical Application of HTGR and Synergy with Non-Nuclear Energy Sources 958
E. A. Andrianova, A. L. Balanin, P. A. Fomichenko, V. N. Grebennik, D. A. Krylov, V. A. Nevinitza, T. D. Shepetina (Kurchatov Inst)
- Cogeneration of Electricity and Liquid Fuels using an HTGR as the Heat Source 965
Michael W. Patterson (INL)

Multiphysics Methods and Codes—I

Session Organizer: Hans David Gougar (INL)

Cochairs: Hans David Gougar (INL), Frederick Reitsma (IAEA)

- Helium Production Prediction in HTR Fuel using Monte Carlo MCB System 978
Jerzy Cetnar, Przemyslaw Stanis, Grzegorz Kepisty, Mariusz Kopeć, (AGH-UST)
- Development of a Core Coolant Flow Distribution Calculation Code for HTGRs 985
Yoshitomo Inaba, Yuki Honda, Tetsuo Nishihara (JAEA)

System and Facility Design—III

Session Organizer: Lew J. Lommers (AREVA)

Cochairs: Xing Yan (JAEA), Lew J. Lommers (AREVA)

- Fuel Cycle Cost Analysis of Th/U MOX Fuel in a Block-Type HTR 991
Jie Huang, Ming Ding, Yongyong Yang (Harbin Engineering Univ)
- Research and Experiment on the Key Technologies of the Spent Fuel Storage in HTR-PM 997
Jinhua Wang, Yue Li, Bin Wu (Tsinghua Univ)
- Design of Dehumidification Test of HTR-PM 1002
Hangbin Zhao, Huaqiang Yin, Yujie Dong, Tao Ma, Yanhua Zheng, Fu Li, Xiaoming Chen, Lihao Chen, Pengya Zhang (Tsinghua Univ)

THURSDAY, NOVEMBER 10, 9:50 AM

Thermal Hydraulics of Key Components—II

Session Organizer: Hans David Gougar (INL)

Cochairs: Yassin A. Hassan (Texas A&M), W. David Pointer (ORNL)

- [Pressure Drop Measurements Across a Helical Coil Steam Generator Configuration](#) 1009
Marilyn Delgado, Samuel Lee, Saya Lee, Yassin A. Hassan (Texas A&M)
- [Numerical Investigation of the Flow Inside the Helical Coil Steam Generator Test Section](#) 1015
Samuel J. Jongoh Lee, Saya Lee, Yassin A. Hassan (Texas A&M)

Hydrogen Production—II

Session Organizer: Michael Andreas Fütterer (JRC)

Cochairs: Michael Andreas Fütterer (AREVA), Lew J. Lommers (AREVA)

- [IS Process Hydrogen Production Test for Components and System Made of Industrial Structural Material \(I\)—Bunsen and HI Concentration Section](#) 1022
Nobuyuki Tanaka, Hiroaki Takegami, Hiroki Noguchi, Yu Kamiji, Jin Iwatsuki, Hideki Aita, Seiji Kasahara, Shinji Kubo (JAEA)
- [IS Process Hydrogen Production Test for Components and System Made of Industrial Structural Material \(II\)—H₂SO₄ Decomposition, HI Distillation, and HI Decomposition Section](#) 1029
Hiroki Noguchi, Hiroaki Takegami, Yu Kamiji, Nobuyuki Tanaka, Jin Iwatsuki, Seiji Kasahara, Shinji Kubo (JAEA)

Fission and Activation Product Transport

Session Organizer: Hans David Gougar (INL)

Cochairs: Yassin A. Hassan (Texas A&M), W. David Pointer (ORNL)

- [REACT_COMPACT: A Computer Code for Modeling Graphite Corrosion and Fuel Hydrolysis](#) 1039
Matt Richards (Ultra Safe Nuclear Corp.)
- [Full Integration of the Fission Product Release Module STACY into the HTR Code Package \(HCP\)](#) 1049
A. Xhonneux (FzJ), H.-J. Allelein, K. Verfondern (FzJ/Aachen Univ)
- [Graphite Dust Deposition on HTGR Steam Generator: Effect of Particle-Wall Impact](#) 1059
Yiyang Zhang, Mingzhe Wei, Xinxin Wu, Xiaowei Luo, Xiaowei Li (Tsinghua Univ)
- [Analysis of a Massive Air Ingress Accident of the High Temperature Gas Cooled Reactor Pebble-Bed Module \(HTR-PM\)](#) 1064
Wei Xu, Yanhua Zheng, Lei Shi, Peng Liu (Tsinghua Univ)

Multiphysics Methods and Codes—II

Session Organizer: Hans David Gougar (INL)

Cochairs: Hans David Gougar (INL), Frederick Reitsma (IAEA)

- [V&V of the HTR Code Package \(HCP\) as an Extensive HTR Steady State and Transient Safety Analysis Framework](#) 1072

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[The Enhanced Fuel Management Models of the HTR Code Package \(HCP\) Module SHUFLE](#) 1086

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[The Development of 3D Physical Program with Integrated Control Rod Calculation for HTR](#) 1103

Jiong Guo, Xia Bing, Li Fu, Zhou Xiaofeng, Fan Kai, Lu Jianan, Niu Jinlin, Guo Jian (Tsinghua Univ)