

Appendix 3. Selection of GIF publications (2021)

General papers

GIF Newsletters nos. 1 to 6, and 1 Special Summer Edition, available at: www.gen-4.org/gif/jcms/c_122378/newsletters-archive.

Lead-cooled fast reactor

Adamov Ye.O., A.V. Kaplienko, V.V. Orlov, V.S. Smirnov, A.V. Lopatkin, V.V. Lemekhov, A.V. Moiseev (2020), "BREST Lead-Cooled Fast Reactor: from the Concept to the Technology Implementation", *Atomic Energy*, Vol. 129, No. 4, pp. 185-194.

Afremov D.A., A.A., Dunaitsev, A.G. Zakharov, A.V. Nedaivozov, V.P. Smirnov, A.V. Tutukin, D.V. Fomichev (2020), "Verification of a CFD-class Software Tool as Applied to Modeling the Fuel Assemblies of Liquid Metal Cooled Reactors", *Thermal Engineering*, 67, Springer, pp. 509-516.

Alemberti A., K. Tuček, M. Takahashi, T. Obara, M. Kondo, A. Moiseev, L. Tocheny, C. Smith, I. S. Hwang, Y. Wu, M. Jin (2020), *Lead-cooled Fast Reactor (LFR) System Safety Assessment*, GIF, Paris, available at: www.gen-4.org/gif/upload/docs/application/pdf/2020-06/gif_lfr_ssa_june_2020_2020-06-09_17-26-41_202.pdf.

Andrianova O.N., E.S. Teplukhina, G.M. Zherdev (JSC SSC IPPE), Z.V. Borovskaya, A.P. Zhirnov (2020), "Precision neutronic calculations of experiments on the neutron transmission through the reflector layers at the BFS critical facilities for expanding the verification database to justify lead cooled fast reactor designs", *Nuclear Energy and Technology*, Vol. 6(4), pp. 269-274.

Balovnev A.V., V.K. Davidov, A.P. Zhirnov, A.N. Ivanyuta, A.V. Moiseev, E.O. Soldatov, V.A. Yufereva (2020), "System of codes for physical design of the lead-cooled fast reactor", *Problems of Atomic Science and Technology. Series: Nuclear and Reactor Constants*, Issue 3, 3:3.

Grachev A.F., L.M. Zabudko, M.V. Skupov, F.N. Kryukov, V.G. Teplov, E.E. Marinenko, S.I. Porollo (2020), "Fission Gas Release from Irradiated Uranium-Plutonium Nitride", *Atomic Energy*, Vol. 129, No. 2, pp. 111-113, Springer.

Hoang V.K., J. Nishiyama and T. Obara (2020), "Effects of compensating for fuel losses during the melt-refining process for a small CANDU reactor", *Annals of Nuclear Energy*, Vol. 135, 106969, Elsevier, DOI: <https://doi.org/10.1016/j.anucene.2019.106969>.

Jaesik K., H. Reyoung Kim (2020), "Forced Circulation of Lead-Bismuth Eutectic Coolant Using Extra Vessel Electromagnetic Pump for the Non-refueling Full-life Micro Reactor," International Conference on Nuclear Engineering, NUE Conference Papers, American Society of Mechanical Engineering (ASME).

Kawano N., Y. Tamai and M. Kondo (2020), "Excellent Corrosion Resistance of Tungsten Materials in liquid Tin", *Plasma and Fusion Research, Rapid Communications*, Vol. 15, 1205068, DOI: <https://doi.org/10.1585/pfr.15.1205068>.

Korostelev A.B., S.V. Yevropin, A.G. Derzhavin, I.V. Vershinin, O.V. Goslavskiy, A.N. Romanov (2020), "Development of New Structural Materials for Innovative Reactor Facilities", *Atomic Energy*, Vol. 129, No. 4, pp. 233-237, Springer.

Kuwagaki K., J. Nishiyama and T. Obara (2020) "Evaluation of Discharged Fuel in Preproposed Breed-and-Burn Reactors from Proliferation, Decay Heat, and Radiotoxicity Aspects", *Nuclear Science and Engineering*, 194(5): 1-9, pp. 405-413, DOI: <https://doi.org/10.1080/00295639.2019.1706322>.

Lee Seung Chul (2020), "Design of Thorium-Fueled Subcritical Reactor Core for TRU Transmutation," MS Thesis, Seoul National University.

Lopatkin A.V., I.V. Platonov, V.E. Popov (JSC NIKIET) (2020), "Conditions for Achieving Radiation Equivalence of Natural Raw Materials and Long-Lived Radioactive Waste in The Nuclear Power Industry of Russia", *Atomic Energy*, Vol. 129, No. 4, pp. 194-198, Springer.

Orlova E.E., V.P. Smirnov (JSC NIKIET) (2020), A.E. Vlasenko, A.V. Palagin (IBRAE RAN), "Simulation of Liquid-Metal Flow and Heat Transfer in Experimental Bundles by CELSIST Sub-Channel Code", *Atomic Energy*, Vol. 128, No. 2, pp. 111-113, Springer.

Molten salt reactor

Rodrigo G. G., R. G. De Oliveira, B. A. Hombourger (2020), "Fuel tap: a simplified breed-and-burn MSR", *Proc. Physics of Reactors (PHYSOR, 2020)*, Nuclear Energy Group, 1547, Cambridge.

Dietz J. (2020), "Chemical-Thermodynamic Modelling of the MSR-Related Systems Under Normal and Accident Conditions", MSc Thesis, Swiss Federal Institute of Technology, Zurich ETHZ.

Danon, A.E. et al. (2020), "Molten salt corrosion (FLiNaK) of a Ni-Mo-Cr alloy and its welds for application in energy-generation and energy-storage systems". *Corrosion Science*, Vol. 164, March 2020, 108306.

Sodium-cooled fast reactor

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Hayafune, H. et al. (2017), "Current status of GIF collaborations on sodium-cooled fast reactor system", *Proc. Int. Conf. FR17*, Yekaterinburg, Russia, June 2017, IAEA-CN245-156.

Janney, D.E., Papesch, C.A., and Middlemas, S.C. (2016), *FCRD Advanced Reactor (Transmutation) Fuels Handbook*, Idaho Falls, ID: Idaho National Laboratory, INL/EXT-15-36520.

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Kikuchi, S. (2016), "Experimental study and kinetic analysis on sodium oxide-silica reaction", *Journal of Nuclear Science and Technology*, Vol. 53(5), pp. 681-91.

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Okano, Y., and Yamano, H. (2015), "Development of a hazard curve evaluation method for a forest fire as an external hazard", *Proc. Int. Topical Meeting on Probabilistic Safety Assessment and Analysis (PSA2015)*, Sun Valley, ID, 26-30 April 2015, No. 11923.

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Ramond, L. et al., (2016), "Fabrication of (U,Ce)O₂ and (U,Am)O₂ pellets with controlled porosity from oxide microspheres", *Proc. 14-IEMPT*, San Diego, CA, 17-21 October 2016.

Vasile, A. (2017), "Recent activities of the safety and operation project of the sodium-cooled fast reactor in the Generation IV International Forum", *Proc. Int. Conf. FR17*, Yekaterinburg, Russia, June 2017, IAEA-CN245-156.

Wakai, T. et al. (2018), "Proposal of simplified J-integral evaluation method for a through wall crack in SFR pipe made of Mod.9Cr-1Mo steel", ASME 2018 Symposium on Elevated Temperature Application of Materials for Fossil, Nuclear, and Petrochemical Industries, Seattle, WA, April 2018, ETAM2018-6708.

Yamano, H. et al. (2014), "Development of margin assessment methodology of decay heat removal function against external hazards - project overview and preliminary risk assessment against snow", *Proc. 12th Probabilistic Safety Assessment and Management Conference (PSAM 12)*, Honolulu, HI, June 2014, No. 44.

Yamada, F. et al. (2014), "Development of natural circulation analytical model in super-COPD code and evaluation of core cooling capability in Monju during a station blackout", *Nuclear Technology*, Vol. 188, pp. 292-321.

Supercritical-water-cooled reactor

Kassem, S., A. Pucciarelli, W. Ambrosini (2021), "Insight into a fluid-to-fluid similarity theory for heat transfer at supercritical pressure: results and perspectives", Accepted for publication by the *International Journal of Heat and Mass Transfer*, 168(2):120813.

Khumsa-Ang, K., S. Rousseau and O. Shiman (2020) "Weight gain and hydrogen absorption in supercritical water at 500°C of chromium-coated zirconium-based alloys: transverse vs longitudinal direction", 10th International Symposium on SCWRs (ISSCWR-10), Prague, the Czech Republic (virtual presentation on 15-19 March 2021).

Kiss Attila, Bence Mervay (2020), "Further Details of a Numerical Analysis on the Thermal Hydraulic Effect of Wrapped Wire Spacers in Fuel Bundle", *Journal of Nuclear Engineering and Radiation Science* 6(3): 031107 (10 pages), Paper No. NERS-19-1069, ASME, Published online at <https://doi.org/10.1115/1.4046842>.

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McLellan A., X. Huang, M. Gaudet, A. Nava-Dominguez (2021), "Modelling of gravity-assisted loop heat pipe experiments", 10th International Symposium on SCWRs (ISSCWR-10), Prague, the Czech Republic (virtual presentation on 15-19 March 2021).

Musa A., G. Mazzini, M. Hrehor, M. Ruščák, A. Dambrósio (2020), "Licensing activity and code validation for generation IV SCW technology", *Nuclear Engineering and Design*, Vol. 357, 110424, ISSN 0029-5493, <https://doi.org/10.1016/j.nucengdes.2019.110424>.

Pucciarelli A., S. He, W. Ambrosini (2020), "A successful local fluid-to-fluid similarity theory for heat transfer to supercritical pressure fluids: merits and limitations", *International Journal of Heat and Mass Transfer*, Vol. 157, 119754.

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Wang WS, LW Guo, G. Zhu, XJ Zhu, QC Bi (2020), "Experimental Investigation on Heat Transfer of Supercritical Water Flowing in the Subchannel with Grid Spacer in Supercritical Water-Cooled Reactor", *Energies*, MDPI, Open Access Journal, Vol. 13(5), pp. 1-17.

Very-high-temperature reactor

Aoki T., H. Sato, H. Ohashi (2020), "Methodology development for Transient Flow Distribution Analysis in High Temperature Gas-cooled Reactor," ICONE2020 (virtual meeting on 4-5 August 2020).

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Gougar, H., (2014), "NGNP Program 2013 Status and Path Forward", INL/EXT-14-31035, Idaho National Laboratory.

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Xu, A. et al. (2021), "Investigation of mechanical property changes in He²⁺ ion irradiated MA957 through nanoindentation and in-situ micro-tensile testing". *Journal of Nuclear Materials*, Vol. 547, 15 April 2021.

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Zhang, L., et al. (2020), "Influence of graphitization degree of nuclear graphite on HTGR reactor physics calculation", *Annals of Nuclear Energy*, Vol. 143, 1-3, Elsevier.

Economic Modelling Working Group

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Proliferation Resistance and Physical Protection Working Group

GIF (2021), *Proliferation Resistance and Physical Protection Working Group (PRPPWG) Bibliography*, compiled by the PRPPWG, Revision 8, GIF, Paris, available at: www.gen-4.org/gif/jcms/c_196871/gif-prppwg-bibliography-rev08-2021-final-2-5-new-cover.

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Risk and Safety Working Group

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Education and Training Working Group

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Safety Design Criteria Task Force

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Advanced Manufacturing and Materials Engineering Task Force

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Research and Development Task Force

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