

Publications

Journal articles

- [1] B. Becker, M. Fratoni, and E. Greenspan. Feasibility of a critical molten salt reactor for waste transmutation. *Progress in Nuclear Energy*, 50(2):236–241, March 2008.
- [2] E. Greenspan, S. G. Hong, K. B. Lee, L. Monti, T. Okawa, A. Susplugas, M. Fratoni, L. Kim, S. Mattafirri, and R. Petroski. Innovations in the ENHS reactor design and fuel cycle. *Progress in Nuclear Energy*, 50(2):129–139, March 2008.
- [3] L. Monti, E. Greenspan, M. Sumini, M. Fratoni, K.-B. Lee, and F. Rocchi. Multi-recycling in the ENHS and the equilibrium core. *Progress in Nuclear Energy*, 50(2):262–268, March 2008.
- [4] L. Monti, K.-B. Lee, M. Fratoni, M. Sumini, and E. Greenspan. Recycling-independent core design for the ENHS fuel self-sustaining reactor. *Nuclear Science and Engineering*, 161(1):1–21, January 2009.
- [5] M. Fratoni and E. Greenspan. Neutronic design of hydride fueled BWRs. *Nuclear Engineering and Design*, 239(8):1531–1543, August 2009.
- [6] E. Greenspan, M. Fratoni, F. Ganda, F. Ginex, D. R. Olander, N. E. Todreas, P. Diller, P. Ferroni, J. A. Malen, A. Romano, C. A. Shuffler, J. M. Trant, B. Petrovic, and H. Garkisch. Hydride fuel for LWRs—project overview. *Nuclear Engineering and Design*, 239(8):1374–1405, August 2009.
- [7] M. Fratoni and E. Greenspan. Equilibrium core composition search methodologies for pebble bed reactors. *Nuclear Science and Engineering*, 166(1):1–16, September 2010.
- [8] M. Fratoni and E. Greenspan. Neutronic feasibility assessment of liquid salt-cooled pebble bed reactors. *Nuclear Science and Engineering*, 168(1):1–22, May 2011.
- [9] K. J. Kramer, M. Fratoni, J. F. Latkowski, R. P. Abbott, T. M. Anklam, E. M. Beckett, A. J. Bayramian, J. A. DeMuth, R. J. Deri, T. D. D. L. Rubia, A. M. Dunne, B. S. El-Dasher, J. C. Farmer, A. Lafuente, W. R. Meier, R. W. Moir, K. R. Morris, E. I. Moses, J. J. Powers, S. Reyes, R. H. Sawicki, J. E. Seifried, E. Storm, and J. M. Taylor. Fusion-fission blanket options for the LIFE engine. *Fusion Science and Technology*, 60(1):72–77, July 2011.
- [10] J. F. Latkowski, R. P. Abbott, S. Aceves, T. Anklam, A. W. Cook, J. DeMuth, L. Divol, B. El-Dasher, J. C. Farmer, D. Flowers, M. Fratoni, T. Heltemes, J. Kane, K. J. Kramer, R. Kramer, A. Lafuente, G. A. Loosmore, K. R. Morris, G. A. Moses, B. Olson, C. Pantano, S. Reyes, M. Rhodes, R. Sawicki, H. Scott, M. Tabak, and S. Wilks. Chamber design for the laser inertial fusion energy (LIFE) engine. *Fusion Science and Technology*, 60(1):54–60, July 2011.
- [11] J. E. Seifried, M. Fratoni, K. J. Kramer, J. F. Latkowski, P. F. Peterson, J. J. Powers, and J. M. Taylor. Adjoint-based uncertainty analysis for essential reactions in a Laser Inertial Fusion Engine. *Fusion Science and Technology*, 60(2):692–697, August 2011.

- [12] R. A. Shapiro and M. Fratoni. Assembly design of pressurized water reactors with fully ceramic microencapsulated fuel. *Nuclear Technology*, 194(1):15–27, April 2016.
- [13] I. Younker and M. Fratoni. Neutronic evaluation of coating and cladding materials for accident tolerant fuels. *Progress in Nuclear Energy*, 88:10–18, April 2016.
- [14] N. R. Brown, J. J. Powers, M. Todosow, M. Fratoni, H. Ludewing, E. Sunny, G. Raiteses, and A. Aronson. Thorium fuel cycles with externally driven systems. *Nuclear Technology*, 194(2):233–251, May 2016.
- [15] A. Jolodosky, K. Kramer, W. Meier, J. DeMuth, S. Reyes, and M. Fratoni. Neutronics and activation analysis of lithium-based ternary alloys in IFE blankets. *Fusion Engineering and Design*, 107:1–12, June 2016.
- [16] C. Andreades, A. T. Cisneros, J. K. Choi, A. Y. K. Chong, M. Fratoni, S. Hong, L. R. Huddar, K. D. Huff, J. Kendrick, D. L. Krumwiede, M. R. Laufer, M. Munk, R. O. Scarlet, N. Zweibaum, E. Greenspan, X. Wang, and P. F. Peterson. Design summary of the Mark-I pebble-bed, fluoride salt-cooled, high-temperature reactor commercial power plant. *Nuclear Technology*, 195(3):223–238, September 2016.
- [17] M. Aufiero, M. Martin, and M. Fratoni. XGPT: extending Monte Carlo generalized perturbation theory capabilities to continuous-energy sensitivity functions. *Annals of Nuclear Energy*, 96:295–306, October 2016.
- [18] Y. Qiu, M. Aufiero, K. Wang, and M. Fratoni. Development of sensitivity analysis capabilities of generalized responses to nuclear data in Monte Carlo code RMC. *Annals of Nuclear Energy*, 97:142–152, November 2016.
- [19] Y. Qiu, Z. Wang, M. Aufiero, M. Fratoni, and K. Wang. Capability of computing sensitivity coefficients with regard to Legendre scattering moments implemented in RMC. *International Journal of Nuclear Safety and Simulation*, 7(2):129–133, December 2016.
- [20] D. Kotlyar, M. Aufiero, E. Shwageraus, and M. Fratoni. A perturbation-based sub-step method for coupled depletion Monte-Carlo codes. *Annals of Nuclear Energy*, 102:236–244, April 2017.
- [21] Y. Qiu, Z. Wang, K. Li, Y. Yuan, K. Wang, and M. Fratoni. Calculation of adjoint-weighted kinetic parameters with the reactor Monte Carlo code RMC. *Progress in Nuclear Energy*, available on line, April 2017.
- [22] P. Hosemann, D. Frazer, M. Fratoni, A. Bolind, and M. F. Ashby. Materials selection for nuclear applications: challenges and opportunities. *Scripta Materialia*, available on line, June 2017.
- [23] M. Aufiero and M. Fratoni. A new approach to stabilization and convergence acceleration in coupled Monte Carlo-CFD calculations: the Newton method via Monte Carlo perturbation theory. *Nuclear Engineering and Technology*, available on line, August 2017.
- [24] G. Zhang, M. Fratoni, and E. Greenspan. Advanced burner reactors with breed-and-burn thorium blankets for improved economics and resource utilization. *Nuclear Technology*, 199:187–218, August 2017.

- [25] M. Fratoni and K. A. Terrani. PWR core design with metal matrix micro-encapsulated (M3) fuel. *Progress in Nuclear Energy*, 100:419–426, September 2017.
- [26] T. Hino, J. Miwa, T. Mitsuyasu, Y. Ishii, M. Ohtsuka, K. Moriya, K. Shirvan, V. Seker, A. Hall, T. Downar, P. M. Gorman, M. Fratoni, and E. Greenspan. Core design and analysis of axially heterogeneous boiling water reactor for burning transuranium elements. *Nuclear Science and Engineering*, 187(3):213–239, September 2017.

Peer-reviewed proceedings

- [1] M. Fratoni, D. Barnes, E. Greenspan, and A. Gandini. LWR spent fuel fed molten salt reactor design and analysis. In *Proceedings of the International Conference on Physics of Reactors*. PHYSOR 2004, Chicago, USA, April 2004.
- [2] E. Rodriguez-Vieitez, M. Fratoni, and E. Greenspan. Spectrum-dependent transmutation efficiency in molten salt reactors. *Transactions of the American Nuclear Society*, 90(1):43–45, June 2004.
- [3] M. Fratoni and E. Greenspan. Transmutation capability of molten salt reactors fed with TRU from LWR. In *Proceedings of the Workshop on Advanced Reactors With Innovative Fuels*. ARWIF 2005, Oak Ridge, USA, February 2005.
- [4] P. Ferroni, M. Fratoni, F. Ginex, F. Ganda, C. Handwerk, E. Greenspan, and N. E. Todreas. Feasibility of improving BWR performance using hydride fuel. In *Proceedings of the International Congress on Advances in Nuclear Power Plants*. ICAPP 2006, Reno, USA, June 2006.
- [5] M. Fratoni and E. Greenspan. Optimal hydride fueled BWR assembly designs. In *Proceedings of the International Conference on Physics of Reactors*. PHYSOR 2006, Vancouver, Canada, September 2006.
- [6] F. Ginex, F. Ganda, M. Fratoni, and E. Greenspan. One-dimensional neutronic analysis of BWR hydride fuel bundles. In *Proceedings of the International Conference on Physics of Reactors*. PHYSOR 2006, Vancouver, Canada, September 2006.
- [7] M. Fratoni, L. Kim, S. Mattafirri, and R. Petroski. Heat pipe encapsulated nuclear heat source reactor (HP-ENHS). *Transactions of the American Nuclear Society*, 95(1):979–980, November 2006.
- [8] B. Becker, M. Fratoni, and E. Greenspan. Molten salt reactors for transmutation of actinides from LWR. In *Proceedings of the 233rd American Chemical Society National Meeting*. 233rd ACS National Meeting, Chicago, USA, March 2007.
- [9] B. Becker, M. Fratoni, and E. Greenspan. Transmutation performance of molten salt versus solid fuel reactors. In *The 15th International Conference on Nuclear Engineering*. ICONE-15, Nagoya, Japan, April 2007.
- [10] M. Fratoni and E. Greenspan. Determination of the equilibrium composition of cores with continuous fuel feed and removal using MOCUP. In *Proceedings of the Mathematics and Computations and Supercomputing in Nuclear Applications*. M&C+SNA 2007, Monterey, USA, April 2007.

-
- [11] M. Fratoni, L. Kim, S. Mattafirri, R. Petroski, and E. Greenspan. Preliminary feasibility study of the heat-pipe ENHS reactor. In *Proceedings of the 13th International Conference on Emerging Nuclear Energy Systems*. ICENES 2007, Istanbul, Turkey, June 2007.
- [12] M. Fratoni, E. Greenspan, and P. F. Peterson. Neutronic and depletion analysis of the PB-AHTR. In *Proceedings of the International Fuel Cycle Conference*. GLOBAL 2007, Boise, USA, September 2007.
- [13] P. M. Bardet, E. Blandford, M. Fratoni, A. Niquelle, E. Greenspan, and P. F. Peterson. Design, analysis and development of the modular PB-AHTR. In *Proceedings of the International Congress on Advances in Nuclear Power Plants*. ICAPP 2008, Anaheim, USA, June 2008.
- [14] M. Fratoni, E. Greenspan, and P. F. Peterson. Neutronic analysis of the PB-AHTR integral design. In *Proceedings of the International Conference on Physics of Reactors*. PHYSOR 2008, Interlaken, Switzerland, September 2008.
- [15] D. Djokic and M. Fratoni. Reaching the next generation of nuclear engineers. In *Proceedings of the The 16th Pacific Basin Nuclear Conference*. PBNC 2008, Aomori, Japan, October 2008.
- [16] M. Fratoni, E. Greenspan, and P. F. Peterson. Coupling of MCNP and ORIGEN2 for pebble bed reactors depletion analysis. *Transactions of the American Nuclear Society*, 101(1):785–786, November 2009.
- [17] M. Fratoni, K. J. Kramer, J. F. Latkowski, R. P. Abbott, J. E. Seifried, and J. J. Powers. Attainable burnup in a LIFE engine loaded with depleted uranium. In *Proceedings of the International Conference on Physics of Reactors*. PHYSOR 2010, Pittsburgh, USA, May 2010.
- [18] K. J. Kramer, J. F. Latkowski, R. P. Abbott, M. Fratoni, J. J. Powers, J. E. Seifried, and J. M. Taylor. The Laser Inertial Fusion Engine as a weapons-grade plutonium fuel burner. *Transactions of the American Nuclear Society*, 102(1):91–92, June 2010.
- [19] J. J. Powers, R. P. Abbott, M. Fratoni, C. Haggmann, K. J. Kramer, J. F. Latkowski, J. E. Seifried, and J. M. Taylor. Neutronics design of a thorium-fueled fission blanket for LIFE. In *Proceedings of the International Congress on Advances in Nuclear Power Plants*. ICAPP 2010, San Diego, USA, June 2010.
- [20] J. E. Seifried, R. P. Abbott, M. Fratoni, K. J. Kramer, J. F. Latkowski, P. F. Peterson, J. J. Powers, and J. M. Taylor. Explicit uncertainty analysis for tritium breeding in a Laser Inertial Fusion Engine. *Transactions of the American Nuclear Society*, 102(1):250–251, June 2010.
- [21] H. R. Greenberg, J. A. Blink, M. Fratoni, M. A. Sutton, and A. D. Ross. Application of analytical heat transfer models of multi-layered natural and engineered barriers to compare alternatives for high-level nuclear waste disposal. In *Proceedings of the Waste Management Conference*. WM2012, Phoenix, USA, March 2011.
- [22] E. L. Hardin, J. A. Blink, J. Carter, M. Fratoni, H. R. Greenberg, R. Howard, and M. A. Sutton. Generic repository concepts and thermal analysis for advanced fuel cycles. In *Proceedings of the Waste Management Conference*. WM2012, Phoenix, USA, March 2011.

- [23] M. Fratoni and K. A. Terrani. Metal matrix microencapsulated (M3) fuel neutronics performance in PWRs. *Transactions of the American Nuclear Society*, 107(1):1025–1028, November 2012.
- [24] P. R. Schwab, W. G. Halsey, A. J. Simon, M. Fratoni, C. Smith, and P. Murray. Energy return on energy investment - fuel recycle. *Transactions of the American Nuclear Society*, 107(1):258–261, November 2012.
- [25] H. R. Greenberg, C. A. Smith, J. A. Blink, M. Fratoni, W. G. Halsey, A. J. Simon, and M. A. Sutton. Energy return on energy investment for an LWR fuel cycle. In *Proceedings of the International High-Level Radioactive Waste Management Conference. IHLRWM 2013*, Albuquerque, USA, May 2013.
- [26] M. Fratoni, J. J. Powers, W. G. Halsey, E. Sunny, J. A. Blink, H. R. Greenberg, and M. Sutton. Assessment of once-through thorium fuel cycles in subcritical systems by a fusion fission hybrid. *Transactions of the American Nuclear Society*, 109(1), November 2013.
- [27] R. A. Shapiro, I. M. Younker, and M. Fratoni. Neutronic performance of accident tolerant fuels. *Transactions of the American Nuclear Society*, 109(1):1351–1353, November 2013.
- [28] R. A. Shapiro, M. J. Vincenzi, and M. Fratoni. Optimization of fully ceramic microencapsulated fuel assembly for PWR. In *Proceedings of the International Conference on Physics of Reactors. PHYSOR 2014*, Kyoto, Japan, October 2014.
- [29] K. D. Huff, M. Fratoni, and H. R. Greenberg. Extensions to the CYCLUS ecosystem in support of market-driven transition capability. *Transactions of the American Nuclear Society*, 111(1):245–248, November 2014.
- [30] P. Gorman, S. Bogetic, G. Zhang, M. Fratoni, J. Vujic, and E. Greenspan. The TRU-incinerating thorium RBWR core preliminary design. In *Proceedings of Advances in Nuclear Fuel Management V. ANFM 2015*, Hilton Head Island, USA, April 2015.
- [31] I. M. Younker and M. Fratoni. Neutronic and economic evaluation of accident tolerant fuel concepts for light water reactors. In *Proceedings of Advances in Nuclear Fuel Management V. ANFM 2015*, Hilton Head Island, USA, April 2015.
- [32] A. Jolodosky, M. Fratoni, W. R. Meier, J. A. DeMuth, S. Reyes, and P. Turchi. Characterization of tritium breeding ratio and energy multiplication factor of lithium-based ternary alloys in IFE blankets. In *Proceedings of the Symposium on Fusion Engineering. SOFE 2015*, Austin, USA, June 2015.
- [33] G. Zhang, M. Fratoni, and E. Greenspan. Once-through thorium blanket driven to very high burnup by fast reactor excess neutrons. *Transactions of the American Nuclear Society*, 112, June 2015.
- [34] D. Djokic, A. Scopatz, H. R. Greenberg, K. D. Huff, R. P. Nibbelink, W. G. Halsey, and M. Fratoni. The application of CYCLUS to fuel cycle transition modeling. In *Proceedings of the International Fuel Cycle Conference. GLOBAL 2015*, Paris, France, September 2015.
- [35] P. Gorman, S. Bogetic, G. Zhang, M. Fratoni, J. Vujic, and E. Greenspan. The fuel self-sufficient RBWR-th core designs. In *Proceedings of the International Fuel Cycle Conference. GLOBAL 2015*, Paris, France, September 2015.

- [36] G. Zhang, M. Fratoni, J. Vujic, and E. Greenspan. Fuel cycle analysis of advanced burner reactors with breed-and-burn thorium blanket. In *Proceedings of the International Fuel Cycle Conference*. GLOBAL 2015, Paris, France, September 2015.
- [37] G. Zhang, P. Gorman, J. E. Seifried, S. Bogetic, M. Fratoni, J. Vujic, and E. Greenspan. Comparison of reduced-moderation boiling water reactor and sodium-cooled fast reactor technologies. In *Proceedings of the International Fuel Cycle Conference*. GLOBAL 2015, Paris, France, September 2015.
- [38] A. Jolodosky, M. Fratoni, W. R. Meier, J. A. DeMuth, and S. Reyes. Activation analysis of lithium-based ternary alloys in IFE blankets. *Transactions of the American Nuclear Society*, 113, November 2015.
- [39] G. Zhang, M. Fratoni, J. Vujic, and E. Greenspan. Compact sodium-cooled fast reactor with thorium breed and burn blanket. *Transactions of the American Nuclear Society*, 113, November 2015.
- [40] M. Aufiero, A. Bidaud, and M. Fratoni. Continuous energy function sensitivity calculation using GPT in Monte Carlo neutron transport: application to resonance parameters sensitivity study. In *Proceedings of the International Congress on Advances in Nuclear Power Plants*. ICAPP 2016, San Francisco, CA, USA, April 2016.
- [41] P. Gorman, M. Fratoni, J. Vujic, and E. Greenspan. Feasibility of TRU-burning resource-renewable boiling water reactors (RBWR) with a square lattice. In *Proceedings of the International Congress on Advances in Nuclear Power Plants*. ICAPP 2016, San Francisco, CA, USA, April 2016.
- [42] X. Wang, K. D. Huff, M. Aufiero, P. F. Peterson, and M. Fratoni. A sensitivity study for fluoride-salt-cooled, high-temperature reactor (FHR) transient using coupled kinetics and thermal-hydraulics model. In *Proceedings of the International Congress on Advances in Nuclear Power Plants*. ICAPP 2016, San Francisco, CA, USA, April 2016.
- [43] G. Zhang, M. Fratoni, and E. Greenspan. Improved utilization of thorium in SFR cores without thorium recycling. In *Proceedings of the International Congress on Advances in Nuclear Power Plants*. ICAPP 2016, San Francisco, CA, USA, April 2016.
- [44] M. Aufiero and M. Fratoni. Development of multi-physics models for fluoride-cooled high temperature reactors. In *Proceedings of the International Conference on Physics of Reactors*. PHYSOR 2016, Sun Valley, Idaho, USA, May 2016.
- [45] M. Aufiero and M. Fratoni. Testing advanced methods for sensitivity/uncertainty analysis in the Monte Carlo code serpent. In *Proceedings of the International Conference on Physics of Reactors*. PHYSOR 2016, Sun Valley, Idaho, USA, May 2016.
- [46] M. Aufiero, M. Martin, M. Fratoni, E. Fridman, and S. Lorenzi. Analysis of the coolant density reactivity coefficient in LFRs and SFRs via Monte Carlo perturbation/sensitivity. In *Proceedings of the International Conference on Physics of Reactors*. PHYSOR 2016, Sun Valley, Idaho, USA, May 2016.
- [47] P. Gorman, M. Fratoni, J. Vujic, and E. Greenspan. Thorium RBWR physics. In *Proceedings of the International Conference on Physics of Reactors*. PHYSOR 2016, Sun Valley, Idaho, USA, May 2016.

- [48] Y. Qiu, K. Wang, and M. Fratoni. Computing adjoint-weighted parameters with reactor Monte Carlo code RMC. In *Proceedings of the International Conference on Physics of Reactors*. PHYSOR 2016, Sun Valley, Idaho, USA, May 2016.
- [49] D. Wooten and M. Fratoni. Enhanced fidelity depletion for molten salt reactors. In *Proceedings of the International Conference on Physics of Reactors*. PHYSOR 2016, Sun Valley, Idaho, USA, May 2016.
- [50] M. Aufiero, M. Martin, and M. Fratoni. Nuclear data uncertainty quantification for adjoint-weighted quantities via XGPT in Monte Carlo codes. *Transactions of the American Nuclear Society*, 114:429–436, June 2016.
- [51] Y. Qiu, M. Aufiero, K. Wang, and M. Fratoni. Generalized sensitivity analysis with continuous-energy Monte Carlo code RMC. In *Proceedings of the 24th International Conference on Nuclear Engineering*. ICONE-24, Charlotte, NC, USA, June 2016.
- [52] X. Wang, K. D. Huff, M. Aufiero, P. F. Peterson, and M. Fratoni. Coupled reactor kinetics and heat transfer model for fluoride-salt-cooled high-temperature reactor transient analysis. In *Proceedings of the 24th International Conference on Nuclear Engineering*. ICONE-24, Charlotte, NC, USA, June 2016.
- [53] Y. Qiu, M. Aufiero, M. Fratoni, and K. Wang. Capability of generalized sensitivity analysis in RMC with collision superhistory-based method. In *Proceedings of the 16th Symposium on Numerical Computation and Particle Transport and the 2016 Conference of Reactor Physics*. CORPHY 2016, Beijing, China, August 2016.
- [54] M. Aufiero, A. Bidaud, and M. Fratoni. Uncertainty analysis for resonance parameters via continuous energy function sensitivity in Monte Carlo neutron transport. In *Proceedings of the International Conference on Nuclear Data for Science and Technology*. ND2016, Bruges, Belgium, September 2016.
- [55] Y. Qiu, Z. Wang, M. Aufiero, M. Fratoni, and K. Wang. Capability of computing sensitivity coefficients with regard to Legendre scattering moments implemented in RMC. In *Proceedings of the 8th International Symposium on Symbiotic Nuclear Power Systems for 21st Century*. ISSNPN 2016, Chengdu Sichuan, China, September 2016.
- [56] M. Atz, X. Liu, M. Fratoni, and J. Ahn. Evaluation of minimum critical mass to inform performance requirement of partitioning and transmutation to eliminate criticality risk in a geologic repository. In *Proceedings of the Fourteenth Information Exchange Meeting*. P&T, San Diego, USA. Nuclear Energy Agency, October 2016.
- [57] X. Liu, M. Fratoni, and J. Ahn. A parametric study on near-field criticality safety for the disposal of spent fuels. In *Proceedings of the Fourteenth Information Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation*. P&T, San Diego, USA. Nuclear Energy Agency, October 2016.
- [58] A. Salazar, M. Fratoni, and J. Ahn. P&T and the prevention of underground criticality. In *Proceedings of the Fourteenth Information Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation*. P&T, San Diego, USA. Nuclear Energy Agency, October 2016.

- [59] S. M. Woo, M. Fratoni, and J. Ahn. Characterization of material non-uniformity to quantify uncertainty in material accountancy in pyroprocessing. In *Proceedings of the Fourteenth Information Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation*. P&T, San Diego, USA. Nuclear Energy Agency, October 2016.
- [60] M. Aufiero, Y. Qiu, and M. Fratoni. The iterated fission matrix method. *Transactions of the American Nuclear Society*, 115, November 2016.
- [61] L. Maul, D. Shen, and M. Fratoni. Neutronics code benchmark for fluoride-salt-cooled reactors. *Transactions of the American Nuclear Society*, 115, November 2016.
- [62] F. Rahnema, D. Zhang, B. Petrovic, D. Diamond, D. Serghiuta, C. Edgar, M. Fratoni, H. Gougar, A. Hawari, J. Hu, N. Hudson, D. Ilas, and I. Maldonado. Phenomena identification and ranking table (PIRT) for fluoride high-temperature reactor (FHR) neutronics. *Transactions of the American Nuclear Society*, 115, November 2016.
- [63] M. Atz, X. Liu, M. Fratoni, and J. Ahn. Material composition effects on far-field fissile deposition minimum critical mass. In *Proceedings of the International High-Level Radioactive Waste Management Conference*. IHLRWM 2017, Charlotte, NC, USA, April 2017.
- [64] M. Aufiero, A. Bidaud, D. Kotlyar, J. Leppanen, G. Palmiotti, M. Salvatores, S. Sonat, E. Shwageraus, and M. Fratoni. New approaches and applications for Monte Carlo perturbation theory. In *Proceedings of the International Conference on Mathematics & Computational Methods*. M&C 2017, Jeju, Korea, April 2017.
- [65] M. Aufiero and M. Fratoni. Stabilization and convergence acceleration in coupled Monte Carlo-CFD calculations: the Newton method via Monte Carlo perturbation theory. In *Proceedings of the International Conference on Mathematics & Computational Methods*. M&C 2017, Jeju, Korea, April 2017.
- [66] M. Aufiero, M. Fratoni, G. Palmiotti, and M. Salvatores. Continuous energy cross section adjustment: a new method to generalize nuclear data assimilation for a wider range of applications. In *Proceedings of the International Conference on Mathematics & Computational Methods*. M&C 2017, Jeju, Korea, April 2017.
- [67] D. Kotlyar, M. Aufiero, E. Shwageraus, and M. Fratoni. Iteration-free coupled Monte Carlo with thermal hydraulic method. In *Proceedings of the International Conference on Mathematics & Computational Methods*. M&C 2017, Jeju, Korea, April 2017.
- [68] D. Kotlyar, M. Aufiero, E. Shwageraus, and M. Fratoni. Stable perturbation-based substep method for coupled Monte Carlo codes. In *Proceedings of the International Conference on Mathematics & Computational Methods*. M&C 2017, Jeju, Korea, April 2017.
- [69] X. Liu, M. Fratoni, and J. Ahn. Effects of random geometry on post-closure repository criticality safety. In *Proceedings of the International High-Level Radioactive Waste Management Conference*. IHLRWM 2017, Charlotte, NC, USA, April 2017.
- [70] A. Salazar, M. Fratoni, and J. Ahn. Uncertainty analysis of far-field precipitation from used nuclear fuel. In *Proceedings of the International High-Level Radioactive Waste Management Conference*. IHLRWM 2017, Charlotte, NC, USA, April 2017.

- [71] P. Gorman, S. Bogetic, M. Aufiero, M. Fratoni, E. Greenspan, and J. Vujic. Uncertainty analysis of the TRU-burning thorium-fueled RBWR using generalized perturbation theory. In *Proceedings of the 25th International Conference on Nuclear Engineering*. ICONE 25, Shanghai, China, May 2017.
- [72] M. Aufiero, P. Rubiolo, and M. Fratoni. Monte Carlo/CFD coupling for the multiphysics modeling of molten salt reactors. *Transactions of the American Nuclear Society*, 116:1183–1186, June 2017.
- [73] S. Bogetic, P. Gorman, M. Fratoni, E. Greenspan, and J. Vujic. 3-D core design of the TRU-incinerating thorium RBWR using accident tolerant cladding. In *Proceedings of the International Conference on Fast Reactors and Related Fuel Cycles*. FR17, Yekaterinburg, Russian Federation. IAEA, June 2017.
- [74] C. W. Forsberg, L. W. Hu, P. F. Peterson, M. Fratoni, K. Sridharan, and E. Blandford. Progress in development of fluoride-salt-cooled high-temperature reactors (FHRs). *Transactions of the American Nuclear Society*, 116:900–903, June 2017.
- [75] M. Martin, M. Aufiero, E. Greenspan, and M. Fratoni. Feasibility of a breed-and-burn molten salt reactor. *Transactions of the American Nuclear Society*, 116:1174–1176, June 2017.
- [76] P. Paviet, P. Alekseev, C. Fazio, M. Fratoni, I. S. Hwang, J. Sun, J. Kelly, X. Liu, T. Mihara, K. Mikityuk, N. Mpoza, Y. Nam, G. Pynn, and C. Renault. GEN IV education and training initiative via public webinars. In *Proceedings of the International Conference on Fast Reactors and Related Fuel Cycles*. FR17, Yekaterinburg, Russian Federation. IAEA, June 2017.
- [77] A. Salazar, M. Atz, X. Liu, and M. Fratoni. The criticality safety studies of Joonhong Ahn. *Transactions of the American Nuclear Society*, 116:110–113, June 2017.
- [78] M. Martin, M. Aufiero, M. Fratoni, and E. Greenspan. Characteristics of a breed-and-burn molten salt reactor. In *Proceedings of the International Fuel Cycle Conference*. GLOBAL 2017, Seoul, Korea, September 2017.
- [79] P. Paviet, P. Alekseev, C. Fazio, M. Fratoni, I. S. Hwang, J. Sun, J. Kelly, X. Liu, T. Mihara, K. Mikityuk, N. Mpoza, Y. Nam, G. Pynn, and C. Renault. Generation IV international forum education and training webinars: a useful resource for all nuclear engineers. In *Proceedings of the International Fuel Cycle Conference*. GLOBAL 2017, Seoul, Korea, September 2017.
- [80] M. Aufiero and M. Fratoni. A "discretization-free" fission matrix approach: the Galerkin method on the continuous fission kernel. *Transactions of the American Nuclear Society*, 117, November 2017.
- [81] J. C. Batchelder, S.-A. Chong, M. Unzueta, C. Waltz, L. Bernstein, J. Bauer, T. Becker, M. Fratoni, J. James, E. Matthews, K. Song, and K. van Bibber. Measurement of the $^{35}\text{Cl}(n,p)$ and $^{35}\text{Cl}(n,\alpha)$ cross-sections at the Berkeley high flux neutron generator. *Transactions of the American Nuclear Society*, 117, November 2017.
- [82] C. Keckler, S. Qvist, T. Fanning, M. Fratoni, and E. Greenspan. SAS4A/SASSYS-1 simulation of ARC system in oxide ABR for improved safety margin. *Transactions of the American Nuclear Society*, 117, November 2017.

- [83] D. Shen, M. Aufiero, A. Bidaud, G. Ilas, J. J. Powers, and M. Fratoni. Progress towards a molten salt reactor experiment benchmark evaluation. *Transactions of the American Nuclear Society*, 117, November 2017.

Book chapters

- [1] M. Fratoni, J. Ahn, B. Nonnecke, G. Locatelli, and K. Goldberg. Development of a knowledge management system for energy driven by public feedback. In *Resilience: A New Paradigm of Nuclear Safety*. Springer, 2017.

Technical reports

- [1] P. F. Peterson, E. Greenspan, M. Fratoni, and A. T. Cisneros. Deep Burn Modular High Temperature Reactors: Project Summary Report. UCBTH-07-007, University of California, Berkeley, October 2007.
- [2] E. M. Beckett and M. Fratoni. Characterization of High Level Waste from a Hybrid LIFE Engine for Enhanced Repository Performance. LLNL-TR-455920, Lawrence Livermore National Laboratory, September 2010.
- [3] M. Sutton, J. A. Blink, M. Fratoni, H. R. Greenberg, W. G. Halsey, and T. J. Wolery. Disposal System Evaluation Framework (DSEF) Version 1.0 - Progress Report. LLNL-TR-484011, Lawrence Livermore National Laboratory, May 2011.
- [4] M. Sutton, J. A. Blink, M. Fratoni, H. R. Greenberg, and A. D. Ross. Investigations on Repository Near-Field Thermal Modeling - Repository Science/Thermal Load Management & Design Concepts. LLNL-TR-491099, Lawrence Livermore National Laboratory, July 2011.
- [5] R. Howard, M. Dupont, J. A. Blink, M. Fratoni, H. Greenberg, J. Carter, E. L. Hardin, and M. A. Sutton. Generic Repository Design Concepts and Thermal Analysis (FY11). SAND2011-6202, Sandia National Laboratories, August 2011.
- [6] M. Fratoni, R. W. Moir, K. J. Kramer, J. F. Latkowski, W. R. Meier, and J. J. Powers. Fusion-Fission Hybrid for Fissile Fuel Production Without Processing. LLNL-TR-522137, Lawrence Livermore National Laboratory, January 2012.
- [7] W. Halsey, A. J. Simon, M. Fratoni, C. Smith, P. Schwab, and P. Murray. Energy Return on Investment - Fuel Recycle. LLNL-TR-560392, Lawrence Livermore National Laboratory, Livermore, CA, June 2012.
- [8] C. A. Smith, J. A. Blink, M. Fratoni, H. R. Greenberg, W. G. Halsey, A. J. Simon, and M. Sutton. Nuclear Energy Return on Energy Investment. LLNL-TR-577013, Lawrence Livermore National Laboratory, August 2012.
- [9] B. Dixon, B. Carlsen, R. Hays, L. Pincock, E. Reber, B. Feng, S. Passerini, T. Kim, T. Taiwo, N. Brown, A. Cuadra, G. Raitzes, M. Todosow, H. Greenberg, E. Sunny, J. Peterson, A. Worrall, J. Powers, J. Gehin, S. Kim, K. Huff, and M. Fratoni. Transition Analysis Methodology Development and Software Assessment. FCRD-FCO-2014-000404, September 2014.

-
- [10] B. Dixon, B. Carlsen, R. Hays, L. Pincock, B. Feng, S. Passerini, T. Kim, T. Taiwo, N. Brown, A. Cuadra, G. Raitses, M. Todosow, H. Greenberg, E. Sunny, J. Peterson, A. Worrall, J. Powers, J. Gehin, S. Kim, K. Huff, and M. Fratoni. FY-14 Fuel Cycle Transition Analyses. FCRD-FCO-2014-000108, September 2014.
 - [11] A. Jolodosky and M. Fratoni. Neutronics Evaluation of Lithium-Based Ternary Alloys in IFE Blankets. LLNL-TR-664710, Lawrence Livermore National Laboratory, November 2014.
 - [12] E. Greenspan, P. M. Gorman, S. Bogetic, J. E. Seifried, G. Zhang, C. R. Varela, M. Fratoni, J. J. Vijic, T. Downar, A. Hall, A. Ward, M. Jarrett, A. Wysocki, Y. Xu, M. Kazimi, K. Shirvan, A. Mieloszyk, M. Todosow, N. Brown, and L. Cheng. Self-Sustaining Thorium Boiling Water Reactors. DOE/NEUP-11-3023, University of California, Berkeley, March 2015.
 - [13] A. Jolodosky, A. Bolind, and M. Fratoni. Review of Reactivity Experiments for Lithium Ternary Alloys. LLNL-SR-677604, Lawrence Livermore National Laboratory, September 2015.
 - [14] A. Jolodosky and M. Fratoni. Neutronics Evaluation of Lithium-Based Ternary Alloys in IFE Blankets. LLNL-SR-677422, Lawrence Livermore National Laboratory, September 2015.
 - [15] X. Liu, A. Salazar, M. Atz, M. Fratoni, and J. Ahn. Summary Report for the FY2015 for JAEA-UCBNE Collaboration – Area 1: Criticality Safety for Geological disposal of Fukushima Damaged Fuels. UCB-NE-5152, University of California, Berkeley, January 2016.
 - [16] S. M. Woo, M. Fratoni, and J. Ahn. Development of Numerical Recipes for High Resolution Depletion Simulations of a PWR Fuel Rod by SERPENT. UCB-NE-5151, University of California, Berkeley, January 2016.
 - [17] X. Liu, A. Salazar, M. Atz, M. Fratoni, and J. Ahn. Summary Report for the FY2015 for JAEA-UCBNE Collaboration – Area 2: Preliminary Criticality Safety Assessment for Direct Disposal of Spent Nuclear Fuels. UCB-NE-5153, University of California, Berkeley, March 2016.