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| **SUNGYEOL CHOI** |
| Assistant Professor of Nuclear and Quantum Engineering  Korea Advanced Institute of Science and Technology (KAIST)  291 Daehak-ro, Yuseong-gu, Daejeon 34141, Korea  sungyeolchoi@kaist.ac.kr |

December 29, 2017

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| **RESEARCH INTERESTS**  **Nuclear Fuel Cycle, Spent Nuclear Fuel, Nuclear Nonproliferation, Nuclear Security**  Current Major Research Projects | | | |
| * Elimination of high level waste using high temperature electrochemical oxide reduction * Meso-scale multi-physics modeling of adhesion and precipitation of oxides on nuclear fuel * Real-time nuclear crime scene investigation using combined LIBS-Raman spectroscopy * Characterization of nano-scale radioactive aerosols from decommissioning | | | |
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| **EXPERIENCE** | | | |
|  | **Korea Advanced Institute of Science and Technology (KAIST)** | | Daejeon, Korea |
| 2017-Present  2017-Present | *Assistant Professor*, Department of Nuclear and Quantum Engineering  *Deputy Director*, Nuclear Nonproliferation Education and Research Center | | |
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|  | **Ulsan National Institute of Science and Technology (UNIST)** | | Ulsan, Korea |
| 2015-2017  2015-2017  2016-2017 | *Assistant Professor*, Department of Nuclear Science and Engineering  *Adjunct Professor*, School of Energy and Chemical Engineering  *Director*, Center for Advanced Nuclear Reactor | | |
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|  | **Korea Atomic Energy Research Institute** | | Daejeon, Korea |
| 2013-2015 | *Senior Researcher*, Division of Nuclear Fuel Cycle Process Development | | |
| 2012-2013 | *Postdoctoral Researcher*, Division of Strategic and International Studies | | |
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|  | **Harvard University** | Cambridge, U.S.A | |
| 2010-2012 | *Research Fellow*, Belfer Center for Science and International Affairs | | |
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|  | **Seoul National University** | | Seoul, Korea |
| 2012 | *Postdoctoral Researcher*, Nuclear Materials Laboratory | | |
| 2008-2012 | *Research Assistant*, Nuclear Materials Laboratory | | |
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|  | **International Atomic Energy Agency** | | Vienna, Austria |
| 2008 | *Intern*, Nuclear Power Engineering Section, Department of Nuclear Energy | | |
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| **EDUCATION** | | | |
| 2008-2012 | **Seoul National University** | | Seoul, Korea |
|  | Ph.D. in Nuclear Engineering, August 2012  Advisor: Professor Il Soon Hwang  Thesis: *Nuclear Supply Dynamics: Effects of Export Competition on Nuclear Nonproliferation* | | |
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| 2004-2008 | **Seoul National University** | | Seoul, Korea |
|  | B.S. in Nuclear Engineering, *summa cum laude*, February 2008  Best undergraduate thesis award  Thesis: *A Study on Transmutation Rate of Long-living Isotopes in PEACER* | | |
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| **TEACHING** | | | |
| **Undergraduates Courses** | | | |
| NQE489: Nuclear Fuel Cycle (2017), KAIST  NSE213: Introduction to Nuclear Engineering (2015-2016), UNIST  NSE223: Nuclear Chemical Engineering (2015-2016), UNIST – Flipped Learning  NSE334: Capstone Design for Nuclear Fuel Cycle Systems (2015), UNIST | | | |
| **Graduates Courses** | | | |
| NUE526: Chemistry of Actinide and Fission Products (2016), UNIST  NUE525: Spent Nuclear Fuel Engineering (2015, 2017), UNIST  NUE629: Nonproliferation and Nuclear Security (2016), UNIST | | | |
| **Outreach Activities** | | | |
| Training on Radiochemistry with Tohoku University – U, Np, Sr, U-Zr-O Mixture (2015, 2016, 2017) | | | |
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| **AWARDS AND HONORS** | | | |
| 2016 | Best Paper Award, Korean Radioactive Waste Society Fall Meeting  (Student: Chan Ki Lee). | | |
| 2015-2017 | Marquis Who’s Who​ in the World. | | |
| 2014 | Best Paper Award, Korean Nuclear Society Spring Meeting. | | |
| 2014 | Best Paper Award, Korean Radioactive Waste Society Spring Meeting. | | |
| 2010-2012 | Harvard University Belfer Center For Science and International Affairs Fellowship. | | |
| 2010-2011 | Hi-Seoul Science Fellowship in Science and Technology, Seoul Ministry of Education. | | |
| 2011 | Poster Award, Korean Nuclear Society Spring Meeting. | | |
| 2010 | Poster Award, Korean Nuclear Society Autumn Meeting. | | |
| 2009 | Best Paper Award, 1st University Nuclear Paper Contest, Korea Hydro & Nuclear Power, MK Business News, and Ministry of Knowledge and Economy. | | |
| 2008-2010 | National Graduate Science and Technology Scholarship, Ministry of Science and Technology. | | |
| 2009 | Best Paper Award, Technical Exchange Workshop, Electric Power Industry Technology Evaluation and Planning of Ministry of Commerce, Industry and Energy. | | |
| 2008 | Best Undergraduate Thesis Award, Center for Teaching and Learning, Seoul National University. | | |
| 2006-2007 | Nuclear Technology Undergraduate Student Society Fellowship, Ministry of Science and Technology. | | |
| 2004-2008 | National Science and Technology Scholarship, Ministry of Science and Technology. | | |
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| **PROFESSIONAL SERVICES** | | | |
| 1. Academic Memberships   *∙ Korean Nuclear Society*  Council of Representatives (2016-)  President, Korean Young Generation Network (2016-)  *∙ Korean Radioactive Waste Society*  Council of Representatives (2017-)  Member, Committee for Nuclear Fuel Cycle Technology (2014-)  *∙ Korean Nuclear Policy Society*  *∙ American Nuclear Society*  *∙ Institute of Nuclear Materials Management*  *∙ International Nuclear Youth Congress*  Country Representative, Board of Directors (2016-)  Member, Committee for Grant Program (2016-)  *∙ Pugwash Conferences on Science and World Affairs*   1. Committee Memberships   *∙ OECD/NEA Information Exchange Meeting on Partitioning and Transmutation (IEMPT)*  Scientific Advisory Committee (2017-)  *∙ Korea Institute of Nuclear Nonproliferation and Control (KINAC)*  Technical Committee for Technical Standards of Safeguards (2017-)  *∙ Ulju-gun, Ulsan Metropolitan City*  Technical Advisory Committee for Energy Industry Complex (2015-)  *∙ Ulsan National Institute Science and Technology*  Committee for Radiation Safety (2015-2017)  *∙* Organizing Committee: *GLANST 2017, IEMPT 2018*  *∙* Session Chair: *GLANST 2017, Global 2017, American Nuclear Society 2014*   1. Journal Reviewer   *Journal of Nuclear Materials, Nuclear Engineering and Design, Nuclear Engineering and Technology, Annals of Nuclear Energy, Advances in Engineering Software, Energy Policy, Energies, Sustainability, Journal of Korean Radioactive Waste Society, International Journal of Energy Research, Journal of Applied Electrochemistry, Korean Journal of International Studies* | | | |
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| **SKILLS** | | | |
| * Languages: Native in Korean. Fluent in English. * Programming: C, C++, Fortran. * Applications: Matlab, Mathematica, OriginLab, ANSYS CFX, COMSOL, Powersim, Vensim, SCALE6, ORIGEN2, TRANSX2, DANTSYS, REBUS3, VISION, REFIN, MOOSE. | | | |
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| **PUBLICATIONS** | | | |
| **Books** | | | |
| 1. **Sungyeol Choi**, Eunju Jun, Il Soon Hwang, *Lessons Learned from the Development of the Korean Nuclear Power Programme* (Vienna, Austria: International Atomic Energy Agency, 2008).   → Upon request, partially republished in:   * 1. **Sungyeol Choi**, Eunju Jun, Il Soon Hwang, Lessons Learned from the Nuclear Power Programme in the Republic of Korea, in *Workforce Planning for New Nuclear Power Programmes* (Vienna, Austria: International Atomic Energy Agency, 2011).   2. **Sungyeol Choi**, Eunju Jun, Il Soon Hwang, *Lessons Learned from the Republic of Korean Nuclear Power Programme related to Human Resource Development* (Vienna, Austria: International Atomic Energy Agency, 2010). | | | |
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| **Journal Articles** (\*forcorresponding author) | | | |
| 1. Jaeyeong Park\*, **Sungyeol Choi**, Sungjune Sohn, Il Soon Hwang, “Cyclic Voltammetry on Zr, Sn, Fe, Cr and Co in LiCl-KCl Salts at 500◦C for Electrorefining of Irradiated Zircaloy-4 Cladding,” *Journal of the Electrochemical Society* 164, pp. D744-D751 (August 2017). 2. Chanki Lee, **Sungyeol Choi**\*, Woo Jin Kim, Min Su Kim, Yon Hong Jeong, “Categorization Methods of Nuclear Materials Used in Advanced Nuclear Fuel Cycles for Physical Protection Systems,” *Nuclear Engineering and Design* 320, pp. 347-385 (August 2017). 3. Seong Jin Seo, **Sungyeol Choi**\*, Byunggi Park, “Transient Modeling of Spent Nuclear Fuel Electrorefining with Liquid Metal Electrode,” *Journal of Nuclear Material*s 491, pp. 115-125 (August 2017). 4. Hyunyub Noh, **Sungyeol Choi**\*, Il Soon Hwang, “Multinational Planning of Nuclear Energy Systems in Asia,” *Energy Sources, Part B: Economics, Planning, and Policy* 12, pp. 289-295 (March 2017). 5. Ruxing Gao, **Sungyeol Choi**, Won Il Ko\*, Sungki Kim, "Economic Potential of Fuel Recycling Options: A Lifecycle Cost Analysis of Future Nuclear System Transition in China," ” *Energy Policy* 101, pp. 526-536 (February 2017). 6. Saerom Yoon\*, **Sungyeol Choi**, Wonil Ko, “An Integrated Multi-criteria Decision-making Approach for Evaluating Nuclear Fuel Cycle Systems for Long-term Sustainability on the Basis of an Equilibrium Model,” *Nuclear Engineering and Technology* 49, pp. 148-164 (February 2017). 7. **Sungyeol Choi**\*, Hyo On Nam, Won Il Ko, “Environmental Life Cycle Risk Modeling of Nuclear Waste Recycling Systems,” *Energy* 112, pp. 836-851 (October 2016). 8. **Sungyeol Choi**\*, Il Soon Hwang, “Effects of Nuclear Technology Export Competition on Nuclear Nonproliferation,” *Nonproliferation Review* 22, pp. 341-359 (April 2016). 9. Jeonghyeon Lee, Sang Hun Shin, Jung Ki Lee, **Sungyeol Choi**, Ji Hyun Kim\*, “Corrosion Behavior of Surface Treated Steel in Liquid Sodium Negative Electrode of Liquid Metal Battery,” *Journal of Power Sources* 307, pp. 526-537 (March 2016). 10. Ruxing Gao, **Sungyeol Choi**\*, Yun Zhou, Won Il Ko, “Performance Modeling and Analysis of Spent Nuclear Fuel Recycling,” *International Journal of Energy Research* 39, pp. 1981-1993 (December 2015). 11. Young Hoon Shin, **Sungyeol Choi**\*, Jae Hyun Cho, Ji Hyun Kim, Il Soon Hwang, “Advanced Passive Design of Small Modular Reactor cooled by Heavy Liquid Metal Natural Circulation,” *Progress in Nuclear Energy* 83, pp. 433-442 (August 2015). 12. Kwang-Rag Kim\*, **Sungyeol Choi**, Jung-Guk Kim, Seungwoo Paek, Won Il Ko, “Electrochemical Investigation of Exchange Current Density of Uranium and Rare-earths Couples (M3+/M0) in LiCl-KCl Eutectic Electrolyte Multi-physics,” *International Journal of Electrochemical Science* 10, pp. 7660-7670 (July 2015). 13. Jaeyeong Park, **Sungyeol Choi**\*, Robert O. Hoover, Kwang-Rag Kim, Sungjun Son, Young Hoon Shin, Supathorn Phongikaroon, Michael F. Simpson, Il Soon Hwang, “Comparison of Multi-dimensional Simulation and Experimental Results for Copper Electro-deposition in Rotating Cylinder Hull Cell Containing CuSO4-Na2SO4,” *Electrochimica Acta* 164, pp. 218-226 (May 2015). 14. **Sungyeol Choi**, Hyo Jik Lee, Won Il Ko\*, “Dynamic Analysis of Once-through and Closed Fuel Cycle Economics using Monte Carlo Simulation,” *Nuclear Engineering and Design* 277, pp. 234-247 (October 2014). 15. Won Il Ko\*, Ho Hee Lee, **Sungyeol Choi**, Ki Hwan Kim, Suing-Ki Kim, Byung Heung Park, Hyo Jik Lee, In Tae Kim, Han Soo Lee, “Preliminary Conceptual Design and Cost Estimation for SFR Fuel Manufacturing Facility (SFMF),” *Nuclear Engineering and Design* 277, pp. 225-233 (October 2014). 16. Won Il Ko\*, Ho Hee Lee, **Sungyeol Choi**, Suing-Ki Kim, Byung Heung Park, Hyo Jik Lee, In Tae Kim, Han Soo Lee, “Preliminary Conceptual Design and Cost Estimation for Korea Advanced Pyroprocess Facility Plus (KAPF+),” *Nuclear Engineering and Design* 277, pp. 212-224 (October 2014). 17. **Sungyeol Choi**, Won Il Ko\*, “Dynamic Assessments on High Level Waste and Low and Intermediate Level Waste Generation from Open and Closed Nuclear Fuel Cycles in Republic of Korea,” *Journal of Nuclear Science and Technology* 51(9), pp. 1141-1153 (September 2014). 18. Jaeyeong Park\*, **Sungyeol Choi**, Sungjune Son, Kwang-Rag Kim, Il Soon Hwang, “Effects of Operating Conditions on Molten-salt Electrorefining for Zirconium Recovery from Irradiated PWR Zircaloy-4 Cladding,” *Nuclear Engineering and Design* 275, pp. 44-52 (August 2014). 19. Jaeyeong Park\*, **Sungyeol Choi**, Sungjun Son, Kwang-Rag Kim, Il Soon Hwang, “Cyclic Voltammetry on Zirconium Redox Reactions in LiCl-KCl-ZrCl4 at 500◦C for Electrorefining Contaminated Zircaloy-4 Cladding,” *Journal of the Electrochemical Society* 161(3), pp. H97-H104 (January 2014). 20. Kwang-Rag Kim\*, **Sungyeol Choi**, Si Hyung Kim, Jun-Bo Shim, Seungwoo Paek, In Tae Kim, “Computational Electrochemo-fluid Dynamics Modeling in a Uranium Electrowinning Cell,” *Journal of Radioanalytical and Nuclear Chemistry* 299(1), pp. 165-170 (January 2014). 21. Kwang-Rag Kim\*, **Sungyeol Choi**, Seungwoo Paek, Jaeyeong Park, Il Soon Hwang, Yongju Jung, “Electrochemical Hydrodynamics Modeling Approach for a Copper Electrowinning Cell,” *International Journal of Electrochemical Science* 8, pp. 12333-12347 (November 2013). 22. **Sungyeol Choi**\*, Il Soon Hwang, “Nonproliferation Drivers from Civil Nuclear Power: South Korea’s External Constraints and Internal Beneficiaries,” *Political and Military Sociology: An Annual Review* 39, pp. 85-102 (September 2012). 23. Hyo Sook Jung, **Sungyeol Choi**\*, Il Soon Hwang, Myung-Jae Song “Environmental Assessment of Advanced Partitioning, Transmutation, and Disposal based on Long-term Risk-informed Regulation: PyroGreen,” *Progress in Nuclear Energy* 58, pp. 27–38 (July 2012). 24. **Sungyeol Choi**\*, Jaeyeong Park, Robert O. Hoover, Supathorn Phongikaroon, Michael F. Simpson, Kwang-Rag Kim, Il Soon Hwang, “Uncertainty Studies of Real Anode Surface Area in Computational Analysis for Pyrochemical Electrorefining,” *Journal of Nuclear Materials* 416(3), pp. 318-326 (September 2011). 25. **Sungyeol Choi**\*, Jae Hyun Cho, Moo-Hoon Bae, Jun Lim, Dina Puspitarini, Ji Hoon Jeun, Han-Gyu Joo, Il Soon Hwang, “PASCAR: Long Burning Small Modular Reactor based on Natural Circulation,” *Nuclear Engineering and Design* 241(5), pp. 1486-1499 (May 2011). 26. Kwang-Rag Kim\*, **Sungyeol Choi**, Do-Hee Ahn, Seungwoo Paek, Han-Soo Lee, Il Soon Hwang, “Electro-fluid Analysis of a Molten-salt Electrorefiner with Rotating Cruciform Anode Baskets,” *Journal of Radioanalytical and Nuclear Chemistry* 286(3), pp. 801-806 (December 2010). 27. **Sungyeol Choi**\*, Jaeyeong Park, Kwang-Rag Kim, Hyo Sook Jung, Il Soon Hwang, Byung Gi Park, Kyung Woo Yi, Han-Soo Lee, Do Hee Ahn, Seungwoo Paek, “Three-dimensional Multispecies Current Density Simulation of Molten-salt Electrorefining,” *Journal of Alloys and Compounds* 503(1), pp. 177-185 (July 2010). 28. Kwang-Rag Kim\*, **Sungyeol Choi**, Jung-Guk Kim, Seungwoo Paek, Do-Hee Ahn, Sang-Woon Kwon, Jun-Bo Shim, Si-Hyung Kim, Han-Soo Lee, Byung-Gi Park, Kyung-Woo Yi, Il Soon Hwang, “Multi-physics Modeling of a Molten-salt Electrolytic Process for Nuclear Waste Treatment,” *IOP Conference Series: Materials Science and Engineering* 9(1), pp. 1-9 (May 2010). 29. **Sungyeol Choi**\*, Eunju Jun, Il Soon Hwang, Anne Starz, Tom Mazour, Soon Heung Chang, Alex Burkart, “Fourteen Lessons Learned from the Successful Nuclear Power Program of the Republic of Korea,” *Energy Policy* 37(12), pp. 5494-5508 (December 2009). 30. Kwang-Rag Kim\*, **Sungyeol Choi**, Do-Hee Ahn, Seungwoo Paek, Byung-Gi Park, Han-Soo Lee, Kyung-Woo Yi, Il Soon Hwang, “Computational Analysis of a Molten-Salt Electrochemical System for Nuclear Waste Treatment,” *Journal of Radioanalytical and Nuclear Chemistry* 282(2), pp. 449-453 (November 2009). | | | |
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| **Journal Articles in Preparation** | | | |
| 1. Heejae Ju, **Sungyeol Choi**\*, Il Soon Hwang, “Probabilistic Risk Assessment Model for Future Inadvertent Human Intrusion into Deep Geologic Repository,” under review. 2. Dokyu Kang, Jaeyeong Park, **Sungyeol Choi**\*, “3D Benchmark of Dissolution and Deposition in Molten-salt Electrorefining,” in preparation. 3. Chanyoung Kim, Myoungsu Shin\*, **Sungyeol Choi**, “Review on Electro-kinetic Decontamination of Radioactive Concrete Waste from Nuclear Power Plants,” in preparation. 4. Nakkue Chae, **Sungyeol Choi\***, Byung Gi Park, Jong-Soon Song, “Review of Characteristics and Measurement of Radioactive Aerosols from Decommissioning of Nuclear Power Plant,” in preparation. 5. Byunggi Park, Seungjin Seo, **Sungyeol Choi**\*, “Thermal, Fluid, and Chemical Modeling within Porous CRUD Deposits in Nuclear Fuel,” in preparation. | | | |
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| **Conference Papers** | | | |
| 1. **Sungyeol Choi**, Dokyu Kang, “Multi-species Modeling of Molten-salt Electrochemical Process,” 2016 American Nuclear Society Winter Meeting, Las Vegas, November 6-10, 2016. 2. **Sungyeol Choi**, Dokyu Kang, Byunggi Park, “Modeling Molten-salt Separation of Radionuclides in Spent Nuclear Fuel,” 2016 International Conference on Nuclear and Radiochemistry (NRC-9), Helsinki, Finland, August 29 - September 2, 2016. 3. **Sungyeol Choi**, “Multiphysics Simulation of Molten Salt Electrochemistry for Partitioning Spent Nuclear Fuel,” International Youth Nuclear Congress 2016, Hangzhou, China, July 24-30, 2016. 4. Dokyu Kang, **Sungyeol Choi**, “Development of 3D Kinetic Model for Multi-species Pyrochemical Electrorefining,” *2016* *Korean Radioactive Waste Society Spring Meeting,* Mokpo, Korea, May 25-27, 2016. 5. Hyeonjun Jeong, **Sungyeol Choi**, “Corrosion Analysis of Metal Structural Materials at High Temperature LiCl-KCl Molten Salt,” *2016* *Korean Radioactive Waste Society Spring Meeting,* Mokpo, Korea, May 25-27, 2016. 6. Chanki Lee, **Sungyeol Choi**, Woo Jin Kim, Min Su Kim, Yon Hong Jeong, “Risk-informed and Performance-based Nuclear Material Categorization for Advanced Fuel Cycle,” *2016* *Korean Radioactive Waste Society Spring Meeting,* Mokpo, Korea, May 25-27, 2016. 7. Kwang-Rag Kim, **Sungyeol Choi**, Sung-Ki Kim, Jeong-Guk Kim, Won Il Ko, Geun-Il Park, “Multiphase Flow Simulation of Immiscible Liquids in a Molten LiCl-KCl/Cd System,” *Global 2015*, Paris, France, September 20-24, 2015. 8. Ruxing Gao, **Sungyeol Choi**, Won Il Ko, “Quantitative and Economic Assessments of Nuclear Fuel Cycle Transition in China,” *Global 2015*, Paris, France, September 20-24, 2015. 9. Jaeyeong Park, **Sungyeol Choi**, Sungjune Son, Il Soon Hwang, Kwang-Rag Kim, “3D Computational Modeling of Irradiated Zircaloy Cladding,” *2015* *Korean Radioactive Waste Society Spring Meeting,* Incheon, Korea, May 27-29, 2015. 10. **Sungyeol Choi**, Hyunyub Noh, Il Soon Hwang, "Determinants and Issues of New Comers to Nuclear Power in Asia," Symposium on the Non-Proliferation Treaty Nuclear Disarmament, Non-proliferation, and Energy Fresh Ideas for the Future, New York, April 28. 2015. 11. **Sungyeol Choi**, Won Il Ko, “Development of Integrated Assessment Model for Nuclear Fuel Cycle Options,” *2014 American Nuclear Society Winter Meeting*, Anaheim, California, U.S.A., November 9-13, 2014. 12. Ruxing Gao, **Sungyeol Choi**, Won Il Ko, “Scenario Comparison of Nuclear Fuel Cycle Transition in China,” *2014 Asian Nuclear Prospects (ANUP)*, November 9-12, 2014. 13. Ruxing Gao, **Sungyeol Choi**, Won Il Ko, “Dynamic Model for Nuclear Power Deployment in China,” *Korean Nuclear Society Spring Meeting*, Yeosu, Korea, October 15-17, 2014. 14. **Sungyeol Choi**, Won Il Ko, “Development of Dynamic Model for Holistic Assessments of Nuclear Energy Systems,” *13th Information Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation*, Seoul, Korea, September 23-26, 2014. 15. Hyo Jik Lee, Won Il Ko, Sung-Ki Kim, **Sungyeol Choi**, Han Soo Lee, Geun-Il Park, In Tae Kim, Discrete Event System Based Pyroprocessing Modeling and Simulation, *11th International Conference on Informatics in Control, Automation and Robotics*, Vienna, Austria, September 1-3, 2014. 16. Hyo Jik Lee, Won Il Ko, **Sungyeol Choi**, Sung-Ki Kim, Han Soo Lee, Hun Suk Im, Jin-Mok Hur, Eun-Young Choi, Geun-Il Park, In Tae Kim, Modeling and Simulation of Pyroprocessing Oxide Reduction, *4th International Conference on Simulation and Modeling Methodologies, Technologies and Applications*, August 28-30, 2014. 17. **Sungyeol Choi**, Won Il Ko, “A New Dynamic Model for Nuclear Fuel Cycle Analysis System Analysis,” *2014* *Korean Nuclear Society Spring Meeting*, Jeju, Korea, May 29-30, 2014. 18. **Sungyeol Choi**, Won Il Ko, “Development of Dynamic Model for Nuclear Fuel Cycle System Analysis,” *2014* *Korean Radioactive Waste Society Spring Meeting,* Pyeongchang, Korea, May 8-9, 2014. 19. **Sungyeol Choi**, Won Il Ko, In Tae Kim, “Integrated System Analysis of Nuclear Fuel Cycle,” *2013 International Symposium on Radiation Safety Management*, Daejeon, Korea, November 6-8, 2013. 20. **Sungyeol Choi**, “Development of System Dynamics Model for Nuclear Fuel Cycle Analysis,” *25rd International Summer Symposium on Science and World Affairs*, Segni, Italy, July 21-29, 2013. 21. Jaeyeong Park, Sungjun Son, **Sungyeol Choi**, Kwang-Rag Kim, Il Soon Hwang, “Benchmark on Cu and Ni Codeposition in Copper Sulfate and Nickel Sulfate Solution by Computational Mass Transport and Electrochemical Model,” *2013 International Congress on Advances in Nuclear Power Plants (ICAPP)*, Jeju Island, Korea, April 14-18, 2013. 22. Jaeyeong Park, Sungjun Son, **Sungyeol Choi**, Kwang-Rag Kim, Il Soon Hwang, “Benchmark on Cu-Ni Co-deposition in CuSo4/NiSo4 Solution by Three-dimensional Mass Transport and Electrochemical Model,” *12th Information Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation*, Prague, Czech Republic, September 24-27, 2012. 23. Hyo Sook Jung, **Sungyeol Choi**, Il Soon Hwang, “Long-term Safe, Secure, and Clean Disposal of Final Nuclear Wastes from PyroGreen Strategies,” *GLOBAL 2011*, Makuhari Messe, Japan, December 11-16, 2011. 24. **Sungyeol Choi**, Jae Hyun Cho, Chun Bo Shim, Il Soon Hwang,“URANUS: Korean Lead-Bismuth cooled Small Modular Fast Reactor Activities,” *2011 ASME Small Modular Reactors Symposium*, Washington, D.C., U.S.A., September 28-30, 2011. 25. **Sungyeol Choi**, “Multinational Export Control for Emerging Nuclear Suppliers,” *23rd International Summer Symposium on Science and World Affairs*, London, England, August 3-10, 2011. 26. Young A Suh, **Sungyeol Choi**, Il Soon Hwang, “South Korean Initiative on Multi-national Nuclear Power Infrastructure Development Education Program for New Comer States,” *Institute of Nuclear Materials Management* (*INMM) 52nd Annual Meeting*, Palm Desert, U.S.A., July 17-21, 2011. 27. **Sungyeol Choi**, “Nuclear Suppliers’ Rights and Responsibilities for Nuclear Renaissance without Proliferation,” *7th International Student/Young Pugwash Conference*, Berlin, Germany, June 29-30, 2011. 28. HyoSook Jung, **Sungyeol Choi**, Il Soon Hwang, “Safety Assessment on PyroGreen Wastes,” *Technical Meeting on Advanced Partitioning Processes*, Vienna, Austria, June 28-30, 2011. 29. Jae Hyun Cho, **Sungyeol Choi**, Moo-Hoon Bae, Jun Lim, Dina Puspitarini, Ji Hoon Jeun, Han-Gyu Joo, Il Soon Hwang, “LBE-cooled Natural-circulation Small Modular Reactor without On-site Refueling,” *Korean Nuclear Society Spring Meeting*, Taebaek, Korea, May 26-27, 2011. 30. Jaeyeong Park, **Sungyeol Choi**, Kwang-Rag Kim, Il Soon Hwang, “Computational Analysis on Electrorefining Process for Zirconium Recovery from PWR Spent Zircaloy-4 Cladding,” *Korean Nuclear Society Spring Meeting*, Taebaek, Korea, May 26-27, 2011. 31. Kwang-Rag Kim, Jaeyeong Park, **Sungyeol Choi**, Taek Jin Kim, Jun-Bo Shim, Kweon Ho Kang, Ho-Hee Ahn, Il Soon Hwang, “Rate-determining Mass Transfer Process in Electrode Reaction,” *Korean Radioactive Waste Society Spring Meeting*, Mungyeong, Korea, May 12-13, 2011 (in Korean). 32. Jaeyeong Park, **Sungyeol Choi**, Il Soon Hwang, “Benchmark Study on Applied Potential of Mark-IV Electrorefiner to Validate Three-dimensional Electrochemo-hydrodynamic Model for Electrorefining Process,” *2011 Annual Waste Management (WM) Conference*, Phoenix, Arizona, U.S.A., February 26 - March 3, 2011. 33. Hyo Sook Jung, **Sungyeol Choi**, Il Soon Hwang, “Determination of Decontamination Factor of Pyroprocessing System,” *2011 Annual Waste Management (WM) Conference*, Phoenix, Arizona, U.S.A., February 26 - March 3, 2011. 34. Jaeyeong Park, **Sungyeol Choi**, Kwang-Rag Kim, Il Soon Hwang, “Development of Three-dimensional Computational Models on Pyrochemical Electrorefining Process for Nuclear Waste Treatment,” *2011 International Workshop on Nuclear Pyroprocessing (NUPYRO)*, Kyoto, Japan, January 11-12, 2011. 35. Hyo Sook Jung, **Sungyeol Choi**, Sung Yeop Kim, Kun-Jai Lee, Il Soon Hwang, “Preliminary Impact Assessment of Advanced Partitioning, Transmutation and Geological Disposal,” *3rd International Pyroprocessing Research Conference*, Dimitrovgrad, Russia, November 29 - December 3, 2010. 36. Jaeyeong Park, **Sungyeol Choi**, Kwang-Rak Kim, Il Soon Hwang, “Benchmark of Mark-IV Electrorefiner using 3D Computational Electrochemo-hydro-dynamic Model,” *11th Information Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation,* San Francisco, California, U.S.A., November 1-5, 2010. 37. Hyo Sook Jung, **Sungyeol Choi**, Sung Yup Kim, Kun-Jai Lee, Il Soon Hwang, “Deep Geological Repository Performance of Low and Intermediate Level Wastes from PyroGreen-PEACER System,” *11th Information Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation*, San Francisco, California, U.S.A., November 1-5, 2010. 38. Jaeyeong Park, **Sungyeol Choi**, Il Soon Hwang, “Methodologies for Three-dimensional Computational Modeling on Electrorefiner,” *2010* *Korean Nuclear Society Autumn Meeting*, Jeju, Korea, October 21-22, 2010. 39. Sang Ki Kim, **Sungyeol Choi**, Il Soon Hwang, Un Chul Lee, “Nuclear Rollback Case-based Qualitative Criteria on Non-proliferation Credibility of Individual Countries,” *2010* *Korean Nuclear Society Autumn Meeting*, Jeju, Korea, October 21-22, 2010. 40. Hyo Sook Jung, **Sungyeol Choi**, “Selection of Key Elements in Spent Nuclear Fuels and its Transportation Behaviors,” *2010* *Korean Radioactive Waste Society Autumn Meeting*, Busan, Korea, October 8-9, 2010 (in Korean). 41. **Sungyeol Choi**, Il Soon Hwang, Joohee Kim, “Multinational Approach Focusing on North Korea’s Nuclear Ambition,” *Pacific Northwest International Conference on Global Nuclear Security–the Decade Ahead*, Portland, Oregon, U.S.A., April 11-16, 2010. 42. **Sungyeol Choi**, Hyo Sook Jung, “Public Acceptance of Nuclear Energy: Learning Effect through Soap Opera,” *1st University Nuclear Paper Contest Proceeding*, 2010 (in Korean). 43. Jae Hyun Cho, **Sungyeol Choi**, Moo Hoon Bae, Jun Lim, Han-Gyu Joo, Il Soon Hwang, “Safety Analysis of a Pb-Bi cooled Small Modular Fast Reactor,” *International Conference on Fast Reactors and Related Fuel Cycles - Challenges and Opportunities,* Kyoto, Japan, December 7-11, 2009. 44. **Sungyeol Choi**, Jae Hyun Cho, Moo-Hoon Bae, Jun Lim, Il Soon Hwang, “P-DEMO for Demonstration of Fast Spectrum Transmutator PEACER,” *International Conference on Fast Reactors and Related Fuel Cycles - Challenges and Opportunities*, Kyoto, Japan, December 7-11, 2009. 45. 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| **Patents** | | | |
| 1. **Sungyeol Choi**, Won Il Ko, “Apparatus for Providing Nuclear Fuel Cycle for Nuclear Power Plant and Method Thereof,” 1016140200000, 2016. 2. Kwang-Rag Kim, Jae-Hoo Jung, Seungwoo Paek, Joon-Bo Shim, Tack-Jin Kim, Kweon-ho Kang, Jaeyeong Park, **Sungyeol Choi**, Il Soon Hwag, “Electrolytic Recovery Device,” 1014288600000, 2014. 3. Il Soon Hwang, Kun Jai Lee, Byung-Gi Park, Ji Hyun Kim, Kyung Woo Yi, Hyo On Nam, **Sungyeol Choi**, Judong Bae, Hyo Sook Jung, “Method for Decontaminating High Level Wastes Arising from High Energy Radiation Facilities to Low-and-intermediate Level Radioactive Wastes,” 1011224770000, 2012. 4. Il Soon Hwang, Chang Hyo Kim, Myung Hyun Kim, Bong Yoo, Han-Gyu Joo, Jun Lim, Dong Yoon Han, **Sungyeol Choi**, Jae Hyun Cho, “Proliferation-resistant Accident-tolerant Secure Capsular Autonomous Reactor, PASCAR,” 1010167100000, 2011. | | | |
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| **INVITED TALKS** | | | |
| 1. *Korean Scandinavian Scientists and Engineers Association*, Stockholm, Sweden, July 26-29, 2017. 2. *The United States Department of Energy,* Bucharest, Romania, May 9-10, 2017. 3. *Yonsei University*, Seoul, Korea, May 4, 2016. 4. *Shanghai Institute of Applied Physics*, Shanghai, China, June 30, 2015. 5. *Tsinghua University*, Beijing, China, June 29, 2015. 6. *Harvard University, The NPT Review Conference,* New York, U.S.A., April 28, 2015*.* 7. *Yonsei University*, Seoul, Korea, April 3, 2015. 8. *Seoul National University*, Seoul, Korea, October 27, 2014. 9. *Ulsan National Institute of Science and Technology*, Ulsan, Korea, September 17, 2014. 10. *Seoul National University*, Seoul, Korea, July 21-24, 2014. 11. *Korea Advanced Institute of Science and Technology*, Daejeon, Korea, May 22, 2014. 12. *Seoul National University*, Seoul, Korea, November 25-29, 2013. 13. *Yonsei University*, Seoul, Korea, November 7, 2013. 14. *Harvard University*, Cambridge, MA, U.S.A., November 22, 2011. 15. *Harvard University*, Cambridge, MA, U.S.A., October 26, 2010. 16. *International Atomic Energy Agency*, Vienna, Austria, December 10-12, 2008. | | | |
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| **RESEARCH GRANTS** | | | |
| 1. PI, *Characterization of Aerosol from Decommissioning of Nuclear Power Plants*, Korea National Research Foundation (NRF), April 2017 ~ December 2019 (KRW 510,000,000). 2. PI, *Development on Real Time Laser Spectroscopy Technology for Nuclear Forensics*, Korea Foundation of Nuclear Safety (KOFONS), March 2017 ~ December 2019 (KRW 475,000,000). 3. PI, *Oxide Reduction of Difficult-to-Reduced Elements at Interfaces between Molten-salt and Oxide containing Multi-components*, Korea National Research Foundation (NRF), November 2016 ~ October 2021 (KRW 600,000,000). 4. Co-PI, *Development of Water Chemistry Code for PWR*, Korea Hydro & Nuclear Power (KHNP), June 2016 ~ May 2019 (KRW 1,416,500,000). 5. PI, *Development of Reference Electrodes for High Temperature Electrochemical Environments*, Korea National Research Foundation (NRF), June 2016 ~ May 2019 (KRW 150,000,000). 6. PI, *Suggestions of International Collaboration Projects on Inter-disciplinary Research in Nuclear Energy*, Korea National Research Foundation (NRF), November 2017 ~ October 2018 (KRW 50,000,000). 7. PI, *Suggestions of* *Emerging Technology and Roadmap of Nonproliferation and Nuclear Security*, Korea Institute of Nuclear Nonproliferation and Control (KINAC), September 2017 ~ December 2017 (KRW 69,000,000) 8. PI, *Development of Numerical Modeling System for Pyroprocessing and Inter-generation Justice of Nuclear Fuel Cycle*, Korea Atomic Energy Research Institute (KAERI), May 2015 ~ December 2017 (KWR 285,000,000). 9. Researcher, *Technology Development of Experimental Dismantling Test for Activated Concrete Structures in Nuclear Power Plants*, Korean Energy Technology Evaluation and Planning (KETEP), November 2016 ~ December 2020 (KWR 12,419,847,000). 10. PI, *Human Resources Development and Demand of Sustainable National Nuclear Power Programs*, Korea National Research Foundation (NRF), December 2016 ~ September 2017 (KRW 50,000,000). 11. Researcher, *Educational and Research Program for National Human Resource Development in Nuclear Nonproliferation*, Korea National Research Foundation (NRF), November 2015 ~ October 2018 (KRW 840,0000,000). 12. PI, *New Method of Attractiveness Level and Categorization of Nuclear Materials*, Korea Institute of Nuclear Nonproliferation and Control (KINAC), October 2015 ~ April 2017 (KWR 140,000,000). 13. PI, *Education Design of Nonproliferation and Nuclear Security*, Korea Institute of Nuclear Nonproliferation and Control (KINAC), July 2015 ~ December 2015 (KWR 50,000,000). 14. PI, *Reduction of Secondary Radioactive Metal Waste from Pyroprocessing*, June 2015 ~ May 2016 (KWR 50,000,000). | | | |
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| **ADVISING** | | | |
| *Graduate Students*   * Yunu Lee, M.S., September 2017 ~ Present. * Do Kyu Kang, M.S., March 2017 ~ Present. * Chanki Lee, M.S., March 2016 ~ February 2018 (expected).   *Undergraduate Students*   * Hyung Jin Beon (UNIST), January 2017 ~ Present. * Daehyuk Ahn (KAIST), January 2017 ~ Present. * Seungjin Seo (UNIST), July 2015 ~ Present. * Nak Kyu Chae (UNIST), July 2015 ~ Present. | | | |
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| Available upon request. | | | |