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Short Biography

Dr. Min Sun Lee is currently a Senior Researcher at Korea Atomic Energy Research Institute (KAERI) in South Korea since 2020. Dr. Lee has devoted herself to the field of medical imaging since 2012, especially focusing on PET (Positron Emission Tomography) instrumentation and internal radiation dosimetry. Recently, Dr. Lee started her new career in nuclear science field, developing novel concept of radiation detectors and systems for rapid and accurate surveillance in Nuclear Power Plants and surrounding environments.

During her Ph.D. training at Seoul National University, Dr. Lee mostly focused on high-resolution PET imaging applications. Dr. Lee developed low-cost depth-of-interaction (DOI) PET detector and system based on a silicon photomultiplier for high-resolution pre-clinical imaging application. Moreover, Dr. Lee proposed a new algorithm for inter-crystal scattering identification that can further improve intrinsic resolution of a PET detector. Not only PET instrumentation, Dr. Lee actively carried out her research on internal radiation dosimetry for personalized medicine. She developed a fast personalized dosimetry techniques by proposing a new voxel-based dose calculation concept and introducing CNN (convolutional neural network)-based dosimetry approach which showed significant improvement in dose calculation time compared to the conventional approach.

In 2018, she joined Dr. Craig Levin's group as a Postdoctoral fellow at Stanford University. During her postdoc, she developed state-of-the-art 100-ps time-of-flight (TOF) PET detector for clinical application, which boost the system sensitivity up to 8 times. Dr. Lee proposed a new concept of high-resolution 100-ps TOF PET detector concept and validated it in both simulation and experiment. Dr. Lee has strong technical skills especially in modeling and investigating detector physics using GATE simulation, experimental prototyping, and evaluation and analysis based on the statistical methods.

And as her research achievements, Dr. Lee has six publications as a first-author and seventeen publications as a co-author in peer-reviewed journals. Her research was selected as an oral presenter for several times and received several grants at international conferences (e.g. IEEE Nuclear Science Symposium / Medical Imaging Conference). In 2019, Dr. Lee received IEEE Ronald J. Jaszczak Graduate Award, which is one of honorable award given to outstanding young researcher in the field of nuclear science and medical imaging.