### PET/MR System

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In 2020, Emory entered an agreement to purchase a 3 Tesla PET/MR system from GE Healthcare.  The system was purchased with funds from an NIH S10 large instrumentation grant awarded to Hui Mao, PhD, and supplemented with Emory Healthcare funds.  The magnet has been delivered, installation of the system has begun, and the go-live date for the system is March 15, 2021.  The scanner will be located in a translation area within the Emory Clinic and will be used 60% for research, and 40% for clinical studies.

The GE SIGNA PET/MR 3.0T 26 with Quantworks features a simultaneous time of flight (TOF) PET imaging with whole body 3.0T magnetic resonance imaging (MRI) in a 60 cm bore. The PET system is composed of 45 LBS-Lutetium based scintillator rings (20,160 total crystals) and 28 Silicon Photomultiplier Modules.  The timing resolution is <400 psec with a coincidence window of 4.57 ns. Axial field of view is 25.0 cm, the trans-axial field of view is 60 cm.  Trans-axial resolution is 3.7-4.2mm and axial resolution is 4.8-7.1mm. The PET processing system contains 896 1.15 GHz GPU cores and a six-core Dual Intel Xeon Processor CPU.  The system is equipped with a number of viewing and image processing programs, including zero-TE attenuation correction for the head.

The MR system is a 3.0 Tesla GE SIGNA 750W with gradients capable of a Peak Amplitude 44 mT/m and a Peak Slew Rate 200 T/m/s.  Main field homogeneity is <0.500 ppm over 40 cm FOV.  The system comes equipped with a number of coils including spine coil, body array coils and Transmit/Receive head coils.  The software suite includes advanced Neuro, body, oncology and orthopedic, cardiovascular, and pediatric packages and includes multi-nuclear spectroscopy.