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Thu-Af-Spec1-04: [Panel 1] HTS for the Next Generation of MRI

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The magnets used in Magnetic Resonance Imaging (MRI) are the largest commercial application of superconducting technology. These magnets predominantly employ niobium-titanium technology, traditionally maintained at cryogenic temperatures by immersion in a liquid helium bath. Recent advancements in sealed and cryogen-free MRI magnet technologies reduce helium dependence, marking a step towards a more sustainable future. High-temperature superconductors (HTS) provide further opportunities for increasing sustainability by operating at higher temperatures, thereby reducing refrigeration power consumption. Beyond environmental benefits, HTS technology may enhance MRI by improving imaging resolution through increased field strength and allowing more compact designs. This panel will review the progress and challenges associated with incorporating HTS in new MRI systems.

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