



Superconductivity for  
Sustainable Energy Systems  
and Particle Accelerators



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## HTS Round Hollow Cable for Fast-Ramped Applications

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A round hollow conductor with a low temperature superconductor (NbTi) is used to the FAIR magnets for the heavy ion synchrotron SIS100 of FAIR. With high capability of relieving a heat from AC losses, the cable enables to operate the magnets with a fast ramp rate such as 27 kA/sec. corresponding 4 T/sec., which are required for the heavy ion acceleration. For a future heavy ion accelerator such as SIS300, which will be installed into the FAIR SIS100 tunnel, a cable with a higher transport current and a comparable ramp rate is required for a higher magnetic field magnet. We are considering a round hollow cable with a high temperature superconductor (HTS) and investigating technical feasibility and possible magnet design for accelerators. We will present studies from the iFAST (WP-8.6) and discuss our goal and challenges, and possibilities for other applications.

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