**MT29 Abstracts and Technical Program** 



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## Sat-Mo-Po.07-02: Thermo-mechanical design of a ReBCO upgrade for normal conducting beam line magnets

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The high-energy beam line infrastructure at GSI, Darmstadt, connecting accelerators and experimental areas, is commonly realized using normalconducting electromagnets. Depending on the duty cycle, each magnet consumes up to 43 kW of DC electric power.

This work presents a study on a future modular upgrade path for the beam line magnets with respect to energy consumption. The concept aims to reuse all parts of the magnet while replacing the coil package. The study presents the thermo-mechanical design for a drop-in replacement of a normalconducting winding package with a ReBCO racetrack winding package. Taking the results of the AC loss modeling as input parameters for the selection of a cryocooler, the thermal design was built around a dry cooling concept.

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