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Modelling of a superconducting Nuclotron-type cable for the application at SIS100 particle accelerator

Nuclotron-type cables will be used at SIS100 accelerator to carry large electric currents. The analysed cables are the part of by-pass lines and connect the sections of the magnets of accelerator. High quality of electric current supplied to the magnets must be ensured. Safety of operation of the line is also crucial. The results of thermo-electromagnetic analysis are presented. Distribution of magnetic field and heat generation was calculated. Calculated cross-talk currents induced in the circuit are within the required margin. The risk of quench is relatively low.

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