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Quadrupole Superconducting Model Magnet for Upgrade of the Nuclotron Synchrotron

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The accelerator Nuclotron is one of the most important installations of the NICA accelerator complex in Dubna, which also includes a booster synchrotron and a collider. The superconducting booster synchrotron was put into operation at the end of 2020, the superconducting collider is in the final stage of assembly. Its launch is scheduled for late 2022. The magnetic system of the superconducting synchrotron Nuclotron has been in operation since 1993 and will require upgrade in the coming years. One of the possible options for upgrading the Nuclotron is to replace its magnets with magnets made of HTS material. A model superconducting quadrupole magnet with a winding of HTS material has been developed and manufactured at Veksler and Baldin Laboratory of High Energy Physics of Joint Institute for Nuclear Research. The design features and the first results of cryogenic tests of the magnet are discussed.

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