

## Magnetic system of the lines of transportation of the derived beams of the cyclotron U400R.

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The U400 cyclotron complex has been operated in the FLNR, JINR, since 1985. Currently, the complex is being prepared for reconstruction, which includes the modernization of the main nodes of the cyclotron, as well as the creation of a new system for transporting particles through channels leading to two main directions: to the SHELS installation and to the new experimental hall (NEH). In the reconstruction project of the cyclotron U400, it is assumed that beams of charged particles are transported to the TM1 turning magnet, where the particle beam is directed to the NEH with zero rotation, and for transportation to the SHELS installation, the particle beam is rotated by an angle of  $40.6^\circ$ . The transport of the withdrawn beams to the NEH is carried out after the turning magnet TM1 to the turning magnet TM5, after which the particle beams are sent to physical installations. The elements of the transportation line are the turning magnet TM2, which rotates the beam in the horizontal direction, and the vertical turning magnets TM3 and TM4. This article discusses the results of three-dimensional calculations of TM turning magnets as part of a magnetic system of lines for transporting derived beams of charged particles.

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