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Fri-Mo-Po.07-07: The design of an analytical magnet

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An analytical magnet has been designed for the SV project at the Shanghai Advanced Research Institute, Chinese Academy of Sciences. According to the design parameters proposed by the Physics Department, we have confirmed the dimensions of the magnet and optimized the field quality. The simulation of the electromagnetic field has been finished in OPERA 3D. In the paper, we give the optimization solution of the pole, study the spatial distribution of the field and errors in the good field region, and also verify that the integrated field meets the design specifications. The magnet will be manufactured in the next two months. When the magnet is produced, we will perform the magnetic field measurement.

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