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Simulations, measurements and sorting of THOMX ring bending magnets.

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The THOMX facility is a compact ring source based on Compton Back Scattering (CBS), under construction at LAL in Orsay (France). Due to high constraints as its compactness (18 meters long storage ring), the low electron energies (ranging from 50 to 70 MeV), the non-linear beam dynamics, the limited beam storage (60ns per turn), THOMX accelerator has to face many technical challenges. One of them concerns particularly ring dipole magnets, having small curvature radius, which have to be designed to ensure a large dynamic aperture preserving the machine performances. The manufacturing of all dipoles is now finished and they have been magnetically characterized by using a Hall probe bench. From the analysis of magnetic field maps, multipole components, excitation curve, field uniformity and magnetic length have been extracted. In this paper, the dipole design, the set-up and magnetic measurement results will be presented and discussed, as well as the sorting issue in preparation of the commissioning of ThomX facility.

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