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## The S2C2 : experiences from in-factory testing and on-site installations

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The ProteusONE proton therapy system by IBA, equipped with the superconducting synchro-cyclotron (S2C2) is now operational at 2 proton therapy centers and three more centers are currently being installed.

The on-site installations and further in-factory testing of the S2C2 has provided much insight in the reproducibility of the beam characteristics and has showed us a fast and efficient approach to machine commissioning.

In this contribution the emphasis will be put on the alignment of the beam out of the S2C2 into the rotating gantry (site experiences), the energy stability and range of the S2C2 and the reproducibility of the beam characteristics. Additionally, the different simulation tools will be presented which enable us to track the beam from the center of the S2C2 up to isocenter. In this way, we can investigate possible perturbations in the ProteusONE system and their impact on the beam performance at the patient level.

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