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Aligning the new Brazilian synchrotron: initial results

This paper describes the first alignment results for the accelerators of Sirius, the new Brazilian synchrotron. It comprises the positioning of the Linac, Booster and Storage Ring components. A complete description of the Linac installation will be given, including the smoothing of the components positions. Initial results are presented for the Booster and Storage Ring magnets. Details of the installation are given, such as the transportation of heavy components, blueprinting and positioning. Also, several procedures related to laser tracker positioning, the use of special measuring instruments and other particularities related to measurement uncertainty estimation are given. Other equipment applied during the alignment will be presented, for example high accuracy digital inclinometers, high precision spirit levels, rotating laser alignment systems and gauge blocks. The installation and alignment of the Linac was performed in cooperation with the Shanghai Synchrotron Radiation Facility, SSRF. For the beamlines, focus will be given to the fiducialization of the components for the first two front-ends.

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