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Instrument Design for the Accelerator Cryogenic System

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In the accelerator cryogenic system, various sensors and instruments are used to measure important parameters such as temperature, pressure, flow rate, liquid level, and heating power. These sensors and instruments are installed in valve boxes, pipelines, gas storage tanks, and accelerator modules. The data measured by these sensors and instruments is collected through PLC (Programmable Logic Controller) and stored in the database. These data can be used to debug the operation of the cryogenic system and provide important support for the safe, reliable and stable operation of the accelerator. This paper describes the selection and working principle of the temperature sensor, Coriolis flowmeter, superconducting level meter, pipe heater and other instruments used in the accelerator Cryogenic system. This paper focuses on the installation process and calibration methods of these sensors. The engineering experience for the use of instruments will contribute to similar accelerator cryogenic systems in the future.

Submitters Country

China

Author: Mr JICHAO, Dong (Institute of Advanced Science Facilities, Shenzhen)

Co-authors: Dr LIANGBING, Hu (Institute of Advanced Science Facilities, Shenzhen); Mr HAINING, Li (Institute of Advanced Science Facilities, Shenzhen); Ms LEI, Xu (Dalian Institute of Chemical Physics. Chinese Academy of Sciences); Dr XILONG, Wang (Dalian Institute of Chemical Physics. Chinese Academy of Sciences); Mr GUANGLONG, Cui (Institute of Advanced Science Facilities, Shenzhen)

Presenter: Mr JICHAO, Dong (Institute of Advanced Science Facilities, Shenzhen)

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