



Contribution ID: 114

Type: Poster

Cryogenic System Operation and the Progress of SSRF II

Wednesday 18 October 2017 16:00 (1h 30m)

The Shanghai Synchrotron Radiation Facility (SSRF) is an intermediate energy light source built at Zhangjiang Hi-Tech Park in Shanghai, China. The SSRF consists of a 432 m and 3.5 GeV storage ring with a 2.9 nm-rad emittance. The RF power and voltage required for storing the electron beam are provided by means of three SC cryomodules, each containing one 499.654MHz superconducting cavity. The Nb cavities, are bath-cooled with saturated liquid helium at 4.5 K. A cryogenic plant with cooling capacity of 650 W at 4.5 K has been in operation since August of 2008 to provide cooling for the 3 SC-cavities.

In order to further improve the performance of SSRF, the following SC devices will be applied as the SSRF Phase II project:

- 1) One third harmonic SRF cavity with 1.5 GHz, to be positioned at the SSRF storage ring, will run at 2 K (31 mbar) by bath cooling.
- 2) One SC wiggler is to be used for one of the new-built beam lines, ultra-hard multi-functional beam line. The SC wiggler will be cooled by cryocoolers at 4.2 K.

For the purpose of supporting operation of the above SC devices, a new cryogenic system (SSRF-II cryoplant) with equivalent cooling capacity of at least 650 W at 4.5 K (including at least 60 W at 2 K) will be designed, fabricated, test and operated for the SSRF-II.

Additionally, the new cryoplant will be used as the back-up of current 650 W refrigeration system at 4.5 K to support normal operation of the online three 500MHz SRF cavities in case of any failure occurred to the current 4.5 K cryoplant.

This paper will present the whole plan of SSRF-II cryoplant.

Author: Dr XU, Junjie (Shanghai Institute of Applied Physics)

Presenter: Dr XU, Junjie (Shanghai Institute of Applied Physics)

Session Classification: 11- Poster Session

Track Classification: Accelerator Systems