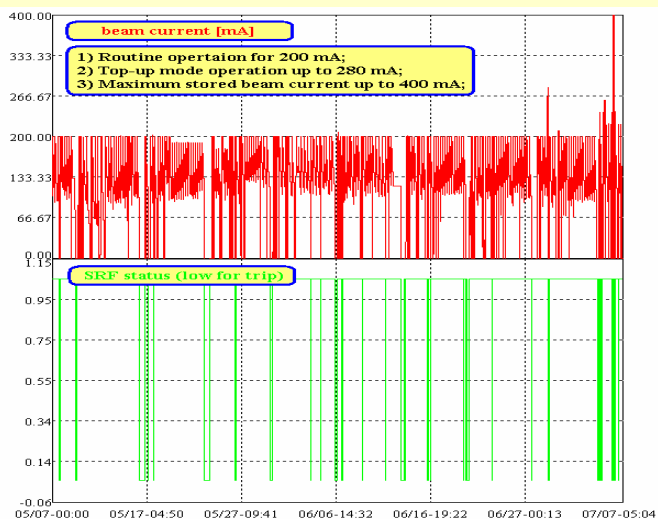


SRF Project (1999-2005)

Abstract

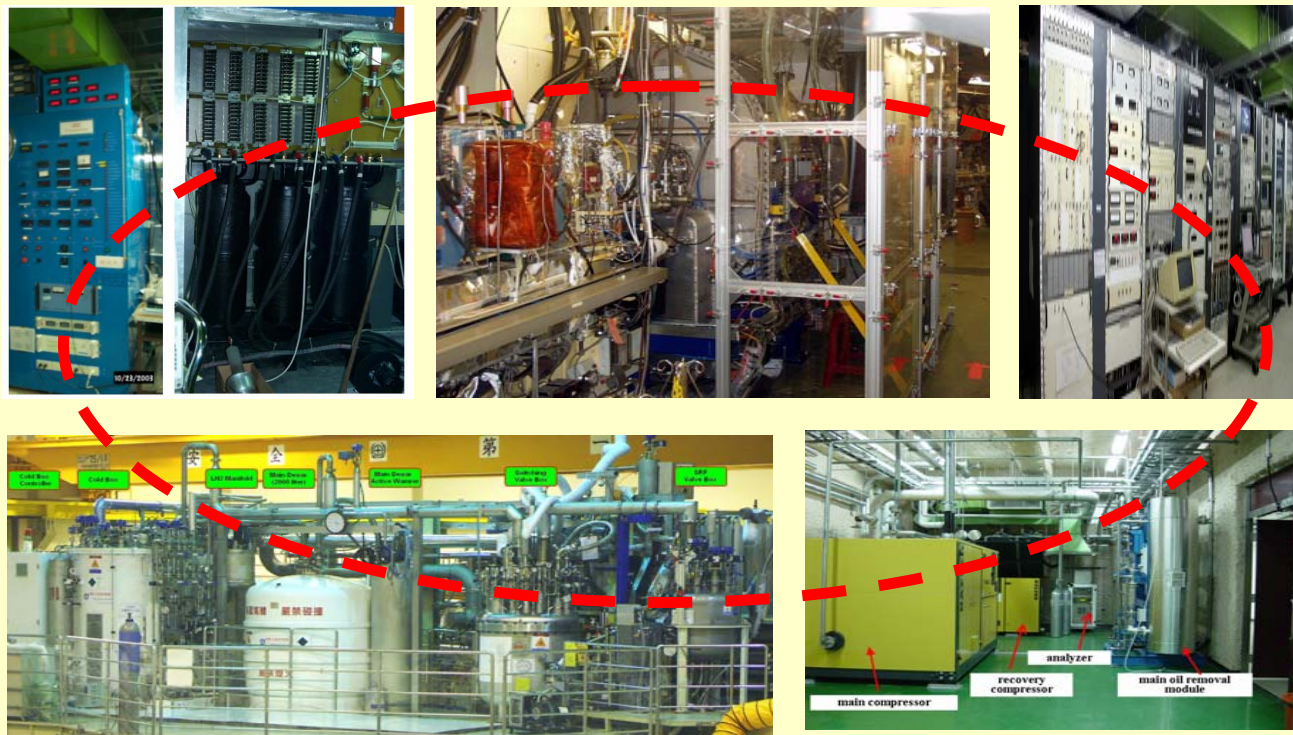
A project to replace two existing room-temperature radio frequency (RF) cavities by one CESR-III 500 MHz superconducting radio frequency (SRF) module was initiated for the Taiwan Light Source (TLS) synchrotron ring in 1999. The goals are to double the photon flux of the synchrotron light by doubling the electron beam current and to increase the stability of the electron beam by taking the advantage of the ultra-weak high-order modes (HOM) of the SRF cavity. The SRF module has been routinely operated since February 2005. The NSRRC users have benefited from a very high photon flux stability ($\Delta I_0/I_0 \sim 0.05\%$) that had never been achieved previously. Here, we report the first-half-year operational experience of the SRF system.

Reliable SRF Operation



In May, there are totally two srf trips in user shifts due to LN2 flow rate too high and quench when beam loss suddenly. In June, there are totally two srf trips in user shifts due to false alarm of window arcing and poor contact of tuner force circuit socket. The other srf "trip" happened during machine maintenance (5% of machine operational time) and machine study shifts (19%) owing to access of srf radiation area, srf interlock check after system modifications, quench during beam loss, etc.

System Integrations



Improvements on Machine Performance

