



Contribution ID: 16

Type: Oral presentation

## Operation and Developments of High Power RF Systems at ORNL Spallation Neutron Source (SNS)

Wednesday 14 May 2014 09:00 (30 minutes)

SNS has been operating successfully and ramping beam power steadily to 1.4 MW the design power at 1.0 GeV beam energy. Availability of RF systems has been improved to  $\sim 95\%$  over the years since commissioning of SNS. Improvements have been made in operation of accelerating structures, RF windows and couplers, and high voltage converter modulators (HVCM) for klystrons for powering nearly 100 cavity structures: Radio frequency quadrupole (RFQ), drift tube linac (DTL), coupled cavity linac (CCL) and superconducting cavity linac (SCL). New waveguide RF windows have been built and tested for improved reliability and future beam power and energy upgrades of SNS. A new spare RFQ also has been manufactured and delivered to SNS for more robust performance of the linac front-end system aiming the future upgrades. The four vane RFQ with octagonal cross section and end-wall dipole rods operates at 402.5 MHz. Integrated Test Station Facility (ITSF) is being setup to allow full beam test with H- Ion Source together with the RFQ. High power RF tests are performed for performance acceptance and RF conditioning of the RFQ and systems. The results of high power tests and performance of the RF systems and the components are presented.

**Primary author:** Dr KANG, Yoon (Oak Ridge National Laboratory)

**Co-authors:** VASSIOUTCHENKO, Alexandre (Oak Ridge National Laboratory); ANDERSON, David (Oak Ridge National Laboratory); MOSS, John (Oak Ridge National Laboratory); CHAMPION, Mark (Oak Ridge National Laboratory / Spallation Neutron Source); CROFFORD, Mark (Oak Ridge National Laboratory/SNS); MIDDENDORF, Mark (ORNL); LEE, Sung-Woo (Oak Ridge National Laboratory)

**Presenter:** Dr KANG, Yoon (Oak Ridge National Laboratory)

**Session Classification:** Wednesday morning 1

**Track Classification:** SPC judgements