

STATUS OF CHINA SPALLATION NEUTRON SOURCE (CSNS)



CSNS Team

The China Spallation Neutron Source (CSNS) facility is designed to provide multidisciplinary platforms for scientific research. The site of CSNS has been selected at Dongguan, Guangdong Province. In the Phase I of the project, the facility comprises an 80-MeV H⁻ linac, a 1.6-GeV proton rapid cycling synchrotron (RCS), beam transport lines, a solid tungsten target station, and 3 initial instruments for the pulsed spallation neutron applications. The RCS provides a beam power of 100 kW with a repetition rate of 25 Hz. The beam power can be further increased to 200 kW in the Phase II. A series of R&D for major components have being performed since 2006. The project design proposal was approved by the Chinese central government in September 2008. The preliminary site geological survey has been completed. The groundbreaking is planned in 2010.

idea of CSNS discussed Feb. 2001

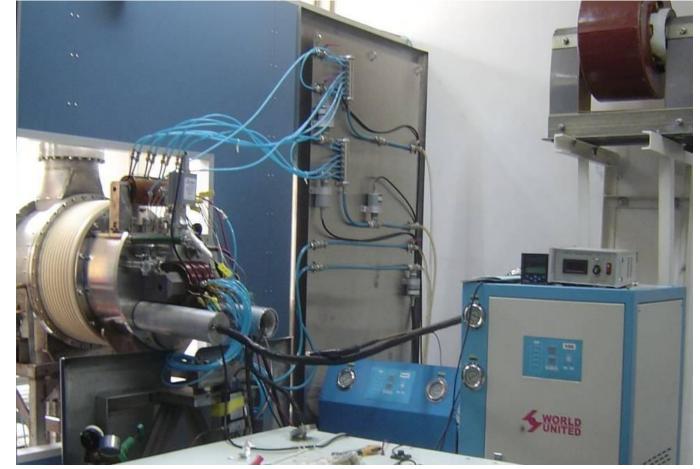
Jun. 2005 project proposal approved in principle by central government Jan. 2006 CAS funded (30M CNY) for R&D 1 Guangdong funded (40M CNY) for R&D 2 Jul. 2007 project proposal review Dec. 2007 project proposal approved by central government Sep. 2008 Oct. 2009 project feasibility study review May 2010 expect to start project construction (ground breaking)

Prototyping R&D Jan. 2006 – Jul. 2010 May 2010 Construction start May 2010 – May 2013 Civil construction May 2010 – May 2014 **Component fabrication** Installation & tests Jan. 2013 – Jan. 2015 Integrated system commissioning May 2014 – Nov. 2015 1st beam on target Nov. 2015 Project complete/operation start Nov. 2016

Design Goal

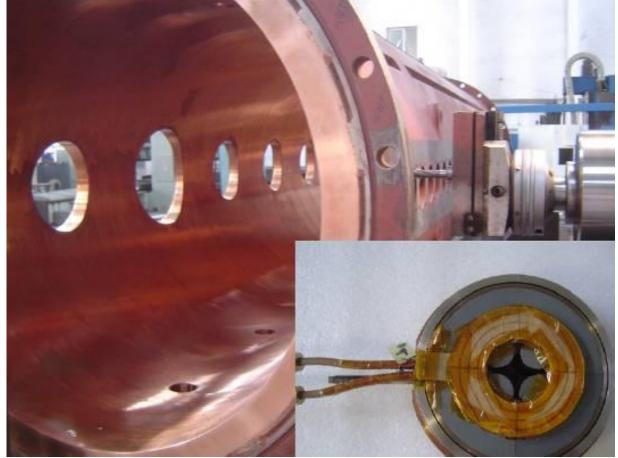
Beam power	Repetition rate	Beam current	Energy	Max neutron flux*	Number of instruments
(kW)	(Hz)	(µA)	(GeV)	(n/cm ² /s)	
100	25	63	1.6	10 ⁶	3

R&D and prototyping work has been carried out since 2006. Over 30 prototyping items (covering most key technologies) have been completed and in the test process.

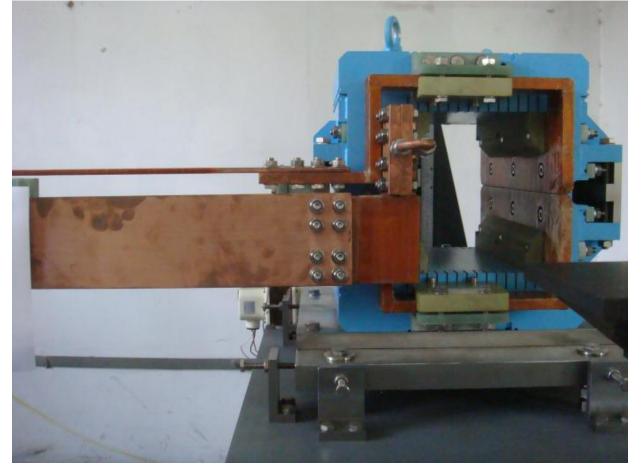




RFQ



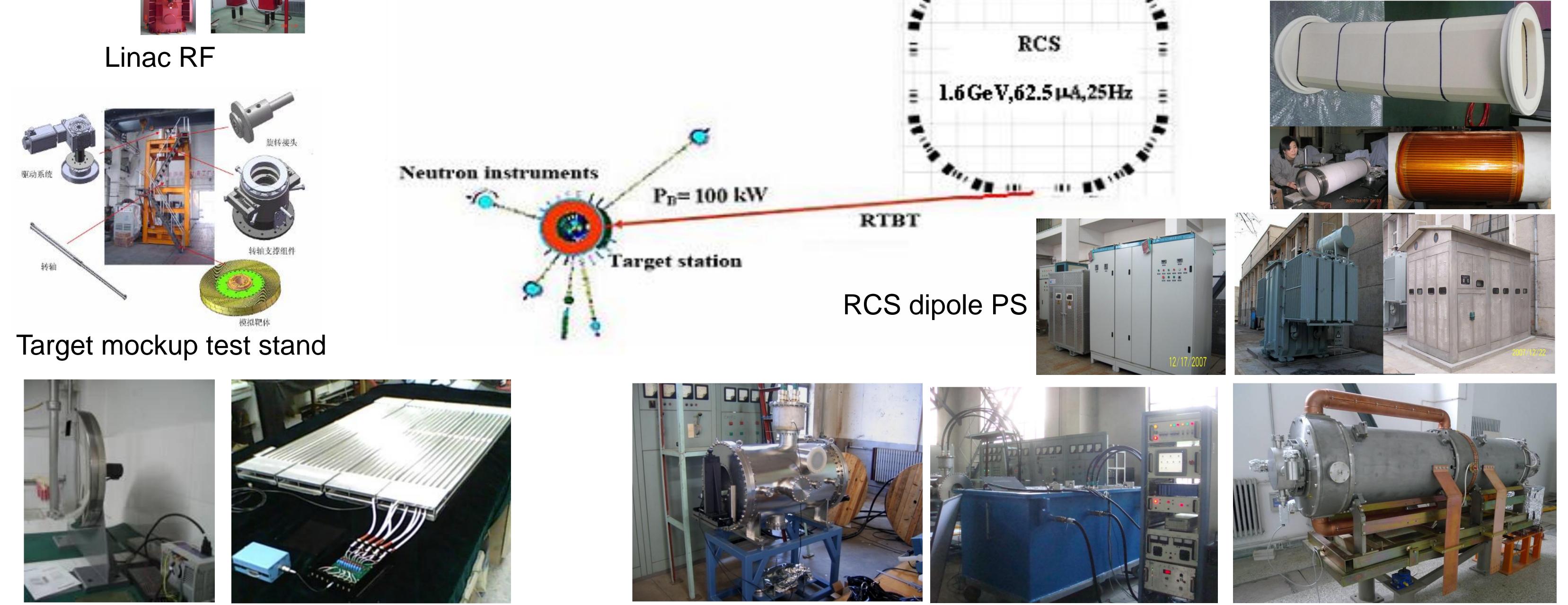
DTL



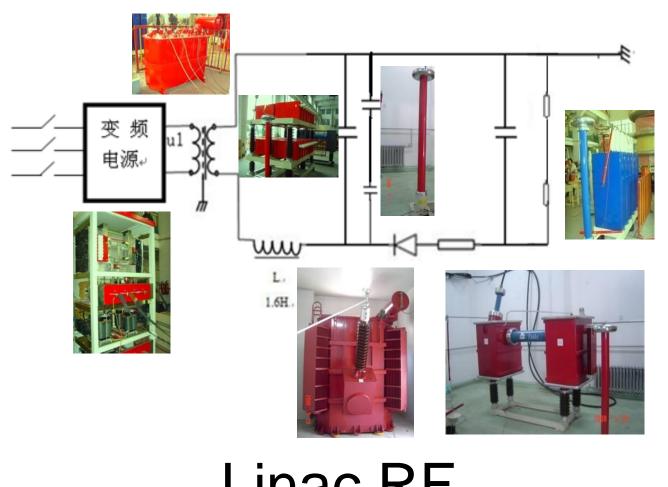
Injection bumper





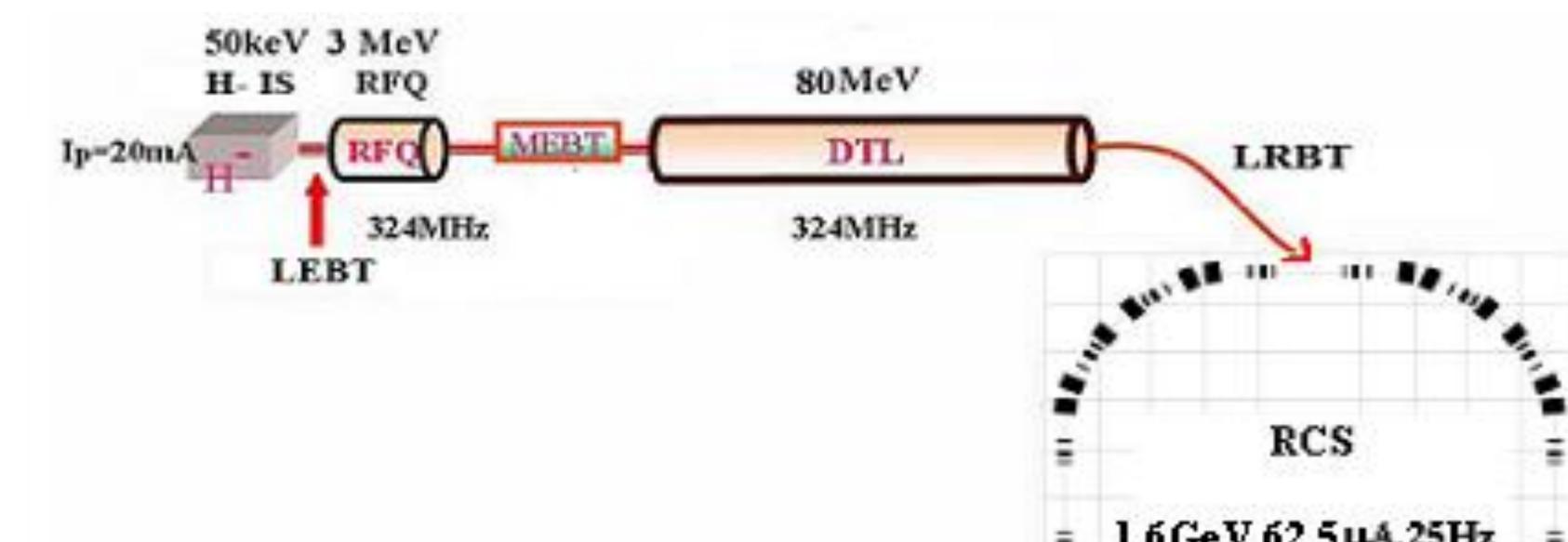






Chopper





³He Neutron Detector

Extraction kicker and PS

RCS RF cavity