Contribution ID: **727** Type: **Poster**

1P67 - Design of High-Voltage Pulse Generator Control System for CSNS Linac RF System

Monday 24 June 2019 13:00 (1h 30m)

China Spallation Neutron Source (CSNS) is the first neutron source facility in developing countries. it includes a powerful linear proton accelerator, a rapid circling synchrotron, a target station and three neutron instruments. As one of the largest science and technology infrastructure projects in China, CSNS is expected to have positive effects in promoting the sciences, high-tech development and national security. Klystron power supply of CSNS is an important part of linac. high-voltage pulse generator provides for Klystron.
High-voltage pulse generator is composed of 400Hz series-resonant DC high-voltage power supply and solid state modulator. it includes variable frequency power supply (50Hz converted to 400Hz), boost transformer (0.5kV-6kV), 400Hz series-resonant LC, energy storage capacitor and pulse high-voltage modulator.
AC power transfer to the 500V of 400 Hz square wave,and then LC series-resonant circuit inspires high-voltage ,AC High-Voltage transfer to DC High-Voltage by Silicon Stack and capacitance, at last realize the output of DC high-voltage. The core component of high-voltage pulse modulator is composed of 150 MOSFET power switches, which are synchronously triggered by the optical pulse,the pulse width and repetition rate of optical signal is variable, so the DC supply is modulated pulse High-Voltage supply.
This paper introduces the structure of the pulse high-voltage generator system and the principle of the system, Focusing on the introduction of high-voltage pulse generator control system, the operation of high-voltage pulse generator.

Author: Mr WAN, Maliang (Dongguan Branch,Institute of High Energy Physics,Chinese Academy of Sciences)

Co-authors: Mr ZHOU, Wenzhong (Dongguan Branch,Institute of High Energy Physics,Chinese Academy of Sciences); Mr MU, Zhencheng (Dongguan Branch,Institute of High Energy Physics,Chinese Academy of Sciences); Mr LI, Jian (Institute of High Energy Physics,Chinese Academy of Sciences); Mr XU, Xinan (Institute of High Energy Physics,Chinese Academy of Sciences); Mr LIU, Meifei (Dongguan Branch,Institute of High Energy Physics,Chinese Academy of Sciences); Mr WANG, Bo (Dongguan Branch,Institute of High Energy Physics,Chinese Academy of Sciences); Mrs RONG, Linyan (Dongguan Branch,Institute of High Energy Physics,Chinese Academy of Sciences); Mr XIE, Zhexin (Dongguan Branch,Institute of High Energy Physics,Chinese Academy of Sciences); Mrs ZHANG, Zonghua (Institute of High Energy Physics,Chinese Academy of Sciences); Mr QIAO, Jimin (Institute of High Energy Physics,Chinese Academy of Sciences)

Presenter: Mr WAN, Maliang (Dongguan Branch,Institute of High Energy Physics,Chinese Academy of Sciences)

Session Classification: Posters Fundamental Research and Basic Processes and Power Electronics

Track Classification: 10.1 Converters, AC and DC