Contribution ID: **323** Type: **Poster**

Upgrade of the Power Triggering System of the LHC Beam Dumping System

Wednesday 21 June 2017 13:30 (1h 30m)

The beam dumping system of CERN's Large Hadron Collider (LHC) is equipped with fast solid state closing switches composed of a stack of ten series connected Fast High Current Thyristors (FHCT).
The triggering circuit of these switches consists of a 10:1 trigger transformer, with stray inductance of 5uH, powered by two redundant Power Trigger Modules (PTM) delivering 500 A peak gate current with rate of rise of 350 A/us.
Operational experience gained since the commissioning of the system in 1998 has identified performance limitation of the LHC Beam Dumping System (LBDS) that could be solved by increasing the triggering current. In view of the operation of the LHC with higher luminosity beams in the coming years, an upgrade of the LBDS triggering system is proposed. The objective is an increase of the FHCT gate current to 2 kA peak with a rate of rise of 3 kA/us, which will increase the FHCT lifetime and reduce the switching time and losses. These new performances will be obtained by the design of a faster low inductance trigger transformer, an optimization of the present PTM electrical circuit and a reduction of the trigger cable inductance.
This paper will present the different modifications proposed for the PTM. First encouraging results obtained with a slightly modified PTM and new prototype trigger transformer will also be discussed.

Author: ALLONNEAU, Lorane (CERN)

Co-authors: DUCIMETIERE, Laurent Sylvain (CERN); MAGNIN, Nicolas (CERN); SENAJ, Viliam (CERN)

Presenter: ALLONNEAU, Lorane (CERN)

Session Classification: Poster session III - Particle Beam and Accelerator Technologies

Track Classification: Particle Beam and Accelerator Technologies