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Upgrade of the Los Alamos Neutron Science Center (LANSCE) Beam Chopper Pattern Generator

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LANSCE delivers macropulses of beam, hundreds of microseconds in duration and at a nominal repetition rate of 120 Hz, to five experiment areas. These macropulses are distributed to four H^- areas and one H^+ area. Each of the H^- experiment areas require a unique beam time structure within the macropulse. This time structure is imposed on the beam by a traveling wave chopper located in the H- Low Energy Beam Transport (LEBT) section of LANSCE. The chopper is driven by pulsed power systems which receive digital signals generated by the LANSCE chopper pattern generator. This chopper pattern generator system must maintain tight synchronization with multiple LANSCE RF reference signals and is triggered by the LANSCE master timer system. This paper describes a recent upgrade to the LANSCE chopper pattern generator from its original NIM/CAMAC/VXI form factor, including details in software and hardware, test results, and future plans.

Footnotes

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