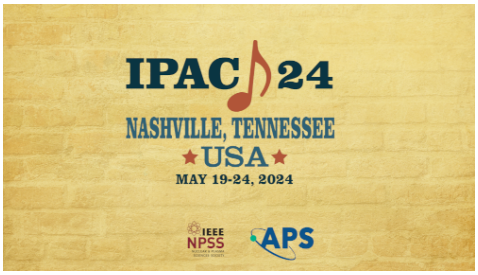

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A pulsed Wien filter as a low-energy kicker

Thursday, 23 May 2024 16:00 (2 hours)

In order for the new ATLAS Materials Irradiation Station (AMIS) to take advantage of the future multi-user capabilities at ATLAS, a pulsed kicker is needed to switch 1 MeV/u heavy-ion beams. At this energy and due to space limitations, a pulsed electric kicker is very challenging due to very high voltage requirement, and a magnetic kicker is also very challenging due to the high magnetic field and fast switching requirements. A solution that satisfies the beam switching requirements is a pulsed Wien filter that combines a DC magnetic field with a pulsed electric field, where each provide only half of the kick angle. During the kicked beam pulse, the two fields combine to provide the full kick angle, while the electric field switches sign to cancel the magnetic field during the un-kicked beam pulse. The electromagnetic and beam design for this novel device will be presented and discussed. The device is now under construction and will be tested in the coming year, first offline then online with beam.

Footnotes

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