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Electromagnetic and beam dynamics modeling of LANSCE front-end elements with CST studio

Monday, 20 May 2024 16:00 (2 hours)

The front end of the 800-MeV proton linac at the Los Alamos Neutron Science Center (LANSCE) is still based on Cockcroft-Walton voltage generators that bring proton and H- beams of various flavors to 750 keV. We have developed 3D CST models of the LANSCE front-end elements including low-frequency and main bunchers. The fields in these elements are calculated with MicroWave and ElectroMagnetic Studio. Beam dynamics is modeled with Particle Studio for beams with realistic charge distributions using the CST calculated fields. The modeling results provide insight into linac operations and a guidance for designing a modern, RFQ-based front end for the LANSCE linac.

Footnotes

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North America

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