

# EXPERIMENTAL CHARACTERIZATION OF THE TRANSVERSE PHASE SPACE OF A 60-MeV ELECTRON BEAM THROUGH A COMPRESSOR CHICANE

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## Abstract

Space charge and coherent synchrotron radiation may deteriorate electron beam quality when the beam passes through a magnetic bunch compressor. This paper presents the transverse phase-space tomographic measurements for a compressed beam at 60 MeV, around which energy the first stage of magnetic bunch compression takes place in most advanced linacs. Transverse phase-space bifurcation of a compressed beam is observed at that energy, but the degree of the space charge-induced bifurcation is appreciably lower than the one observed at 12 MeV. The Traffic4 simulation confirms the observation.

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