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Numerical simulations of transverse nonlinear beam manipulations at the CERN PS

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A new set of nonlinear beam manipulations have been recently proposed, with the goal of extending the transverse beam splitting that is routinely used at the CERN PS to deliver beam to the SPS for fixed-target physics. Using a simple Hamiltonian model, it has been shown how the transverse emittances can be shared by crossing a two-dimensional nonlinear resonance. Moreover, it has been shown how an AC-dipole can be used to split transversely the beam. In this paper, numerical simulations of these manipulations performed using a realistic model of the PS ring, including longitudinal motion, will be presented and discussed in detail.

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Footnotes

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Yes

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