

Simulated Performance of an FIR-Based Feedback System to Control the Electron Cloud Single-Bunch Transverse Instabilities in the CERN SPS

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The performance of High Energy proton machines like the SPS at CERN is affected by transverse single-bunch instabilities due to the Electron Cloud effect. In a first step to model a Feedback control system to stabilize the bunch dynamics, we use a Finite Impulse Response filter to represent the processing channel. The effect of this simplified processing channel in the bunch dynamics is analyzed using the simulation package WARP-POSINST (see talk by J. L. Vay et al.). We report on simulation results, discuss the basic features of the feedback model and present our plans for further development of the numerical models used in the simulations.

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