First Results with HEADTAIL for CesrTA

A software package for modelling single-bunch instability and emittance growth authored by G. Rumolo/CERN

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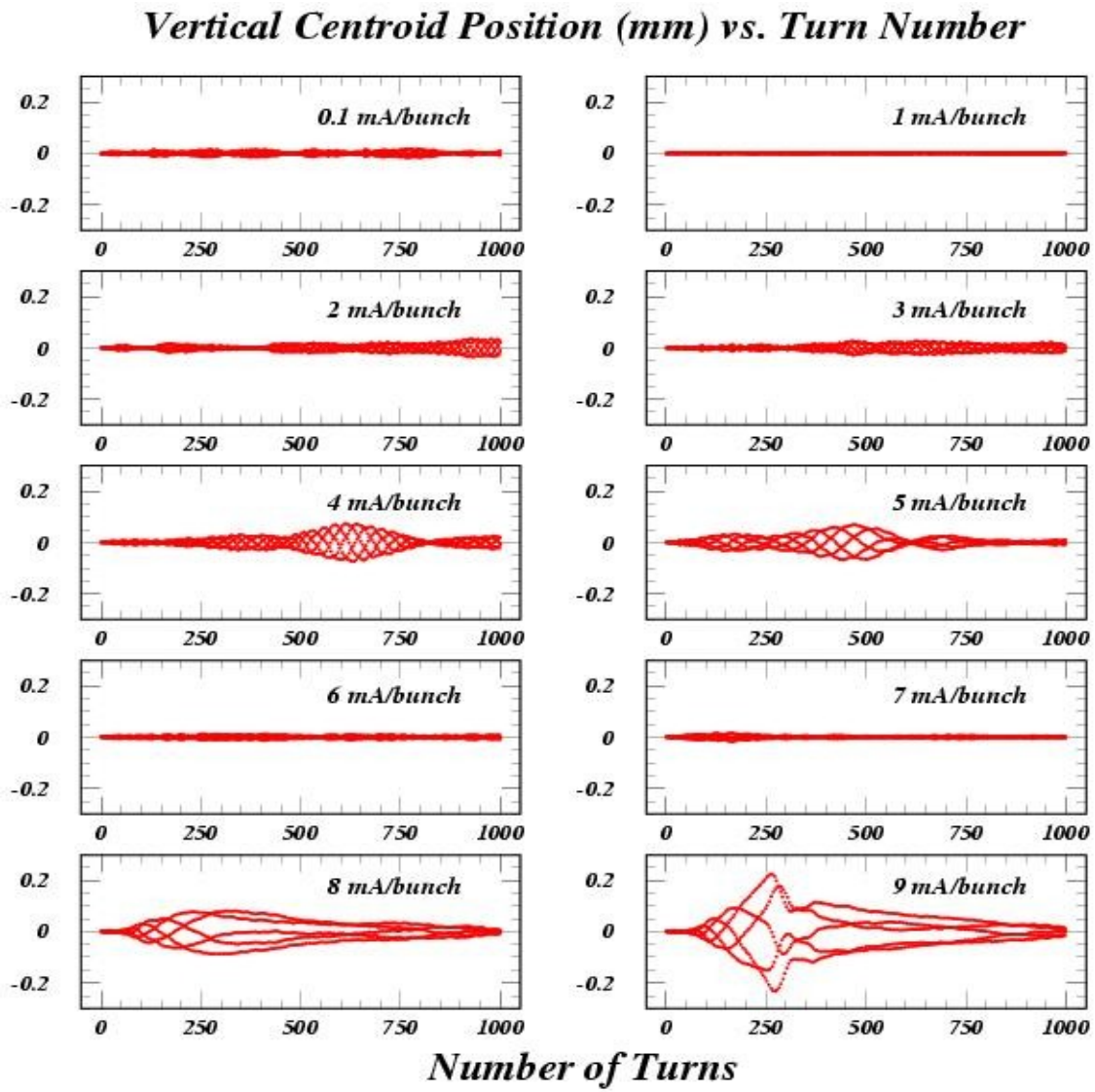
HEADTAIL Modelling of CesrTA Single-Bunch Instability Threshold



CesrTA 2.085 GeV Optics

Beta functions and beam size averaged over drift regions

Uniform electron cloud density 1e12 m^{-3}

Instability threshold for this case found between 7 and 8 mA/bunch

<u>Numerical Parameters</u>

Nr macro-e-: 100k
Nr bunch m.p.: 500k
Nr bunch time slices: 150
Nr cloud/bunch i.p./turn: 1

Some preliminary numerical tests done. More needed.