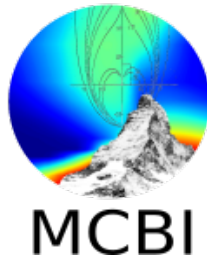


ICFA mini-Workshop on "Mitigation of Coherent Beam Instabilities in particle accelerators" MCBI 2019



Contribution ID: 91

Type: **not specified**

* Space Charge and Coherent Stability

Tuesday 24 September 2019 17:40 (10 minutes)

This work presents measurements demonstrating the impact of space charge on the historical vertical SPS instability. The instability has first been encountered as an intensity limit in the SPS Q26 optics. The framework of the fast head-tail instability (or transverse mode coupling instability) describes the behaviour of the found intensity thresholds well. Now, for the first time, we explore the impact of space charge on these findings – and discover that different transverse emittances for otherwise identical beam parameters strongly impact the coherent stability of the proton beam. Since the influence of space charge on the fast head-tail instability is a long-standing topic of discussion since M. Blaskiewicz [1998] first described the problem, we hope to shine some light on the mechanisms with these new measurements.

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Session Classification: Poster Session