**Space-charge compensation experiments at ASTA**

**Abstract:**

The space-charge effects belong to the category of the most long-standing issues in beam physics, and even today, after several decades of very active exploration and development of counter-measures, they still pose the most profound limitations on performance of high intensity accelerator facilities. I will briefly review the past experience in active compensation of these effects and discuss in detail a number of new schemes which will be experimentally tested at the ASTA's facility storage ring call IOTA.

**Summary:**

Several new schemes of space-charge compensation will be experimentally tested at the ASTA's facility storage ring call IOTA and the results of these studies will open the way to the design on the next generation of the multi-MW proton accelerators for the Fermilab accelerator complex upgrade.