**Longitudinal dynamic in NICA Barrier Bucket RF System at transition energy including impedances in BLonD #203**

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**Abstract:**

The paper investigates the influence of space charge impedances, as well as RF resonators, on longitudinal dynamics during the procedure of transition energy crossing with a jump. A distinctive feature is the use of Barrier Bucket RF, as a result a specific distribution of the beam in the phase space, different from the classical one formed by harmonic RF.