

Clément Évain (Université de Lille) - Microbunching Instability in Storage Rings

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“In storage rings - where relativistic electron bunches circulate in a pseudo-circular orbit - a spatio-temporal instability appears when the number of electrons exceeds a threshold value.

This so-called microbunching instability is characterized by the spontaneous apparition of micro-structures at the millimeter scale in the longitudinal profile of the electron bunch and form a complex dynamics. A general overview of this instability will be presented. Experimental, numerical (in particular based on Vlasov-Fokker-Planck equation) and theoretical aspects will be discussed.