



Contribution ID: 58

Type: oral

BEAM DYNAMICS IN THE STORAGE RING OF A COMPACT MONOCHROMATIC RADIATION SOURCE IN THE X-RAY RANGE BASED ON COMPTON BACKSCATTERING

Monday, 5 June 2023 12:40 (20 minutes)

The study aimed to conduct dynamics calculations, considering collective effects in a storage ring for a compact monochromatic radiation source in the X-ray range based on Compton backscattering. The calculation focused on various instabilities and collective effects, including microwave instability, coherent synchrotron radiation (CSR), instability of transverse coupled modes, space charge, and Beam-Ion instability. The analysis provided a comprehensive understanding of the factors limiting the machine's performance and instabilities thresholds.

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Session Classification: S2: Radiation: Generation & Interaction