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Smith-Purcell radiation studies towards a compact high-resolution longitudinal diagnostic

Sunday 25 August 2024 16:00 (2 hours)

A new longitudinal diagnostic has been proposed, the SPACEChip (Smith-Purcell ACcElerator Chip-based) diagnostic, which can infer information about the temporal profile of a particle bunch from the Smith-Purcell radiation spectrum generated when the bunch passes close to a dielectric grating. This is done using the bunch form factor after retrieving the phase. A simulated dielectric grating has been excited by Floquet modes to investigate the angular distribution of the Smith-Purcell radiation. Progress on the SPACEChip experimental campaign at the ARES linac at DESY will be reported, along with the expected photon yield from the structure with the ARES operational parameters.

Footnotes

Funding Agency

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