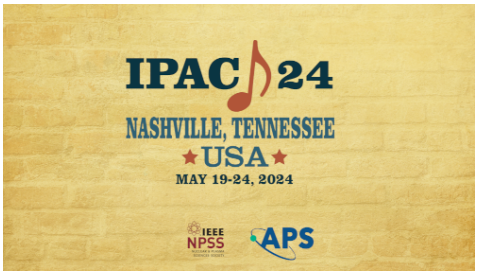

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Imparting arbitrary correlation on longitudinal phase space using transverse wigglers and deflecting cavities

Monday, 20 May 2024 16:00 (2 hours)

Imparting designed nonlinear correlation on the longitudinal phase space is nontrivial task. While RF cavities operating at different frequencies can generate arbitrary correlation in principle, it is hard to realize such system due to the lack of RF power sources and their costs. We present a new method that may overcome such practical limitation by adopting transverse wigglers and transverse deflecting cavities. Deflecting cavities introduce and eliminate linear correlation between longitudinal and transverse coordinates. We located transverse wigglers, which impart arbitrary correlation on the transverse phase space, where the longitudinal-to-transverse correlation is maximized. In principle, this system only requires deflecting cavities operating in the same frequency and several magnets such as transverse wigglers and quadrupoles.

Footnotes

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