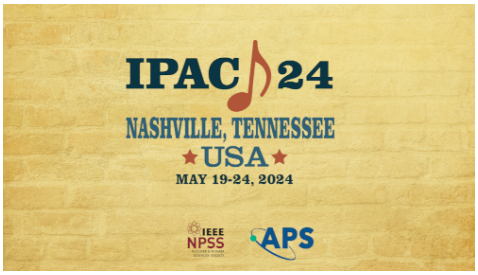

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Simulation study for nanometer-scale modulation transfer in emittance exchange beamlines

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

Generating nanometer-scale density modulation has been pursued due to its potential for compact X-ray source applications. Realization of this nanometer modulation involves two key challenges: development of sub-micron-scale momentum modulation method and conversion method to density modulation without quality degradation. Addressing the first challenge, emittance exchange (EEX) beamline is a promising candidate. Its unique capability of transverse-to-longitudinal phase space exchange makes it compatible with various modulators imparting either transverse or longitudinal modulations. This versatility allows us to find optimal radiators, addressing the second challenge. Study on degradation sources and their effects on the beam are underway to realize nanometer-scale modulation using EEX beamline. We present most recent results from our simulation study.

Footnotes

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