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Complex bend prototype beamline design and commissioning

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Modern synchrotron light sources are competing intensively to increase X-ray brightness and, eventually, approach the diffraction limit, which sets the final goal of lattice emittance. Recently, we propose a new optics solution aimed at reaching low emittance, using a lattice element “Complex Bend”. The Complex Bend is a sequence of dipole poles interleaved with strong alternate focusing so as to maintain the beta-function and dispersion oscillating at low values. By integrating this element in NSLS-IIU upgrade, the designed lattice emittance is around 30 pm-rad. To prove the feasibility of this new design, we have planned the key element prototype test, in the beam line with 200 MeV beam energy. We designed and fabricated the prototype complex bend, with gradient at 140 T/m. It is installed and commissioned at NSLS-II linac beamline. In this paper, we’ll report the test beamline design and beam commissioning progress

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Footnotes

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Yes

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