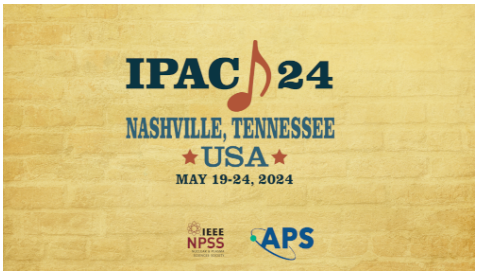

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Commissioning optics: larger dynamic aperture and Touschek lifetime at the (temporary) cost of larger horizontal emittance in 4th generation light sources

Thursday, 23 May 2024 11:30 (20 minutes)

Reduction of dynamic aperture encountered in 4th generation light sources presents a challenge for injection efficiency and commissioning. It's possible that only after BBA and optics corrections are applied, will the dynamic aperture be sufficient for reasonable injection efficiency. Furthermore, it's only after a circulating beam is established that BBA, BPM calibration, and other optics corrections can be applied. Limited dynamic aperture not only makes standard top-up operation more challenging; during commissioning this challenge is even greater. To address this problem, we have developed a lattice design that allows for both low emittance optics (for standard user beam operation) and what we have called "commissioning optics"which is a set of lattice parameters that allows for larger dynamic aperture and Touschek Lifetime at the (temporary) cost of larger horizontal emittance.

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