

## **Electron Beam Requirements for Seeded FEL**

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Variations and jitter in electron beam parameters acts differently on the performance of SASE and seeded FELs. SASE are self-tuning and exhibits mostly arrival time and wavelength jitter, while the pulse energy is mostly preserved. This is reserved for seeded FEL, imposing more stringent tolerances for the electron beam quality than SASE FELs. In addition a multi stage approach requires a better control of the electron beam parameters along the bunch. The impact of various jitters on the FEL performance for laser-based seeded and self-seeded FEL is discussed.