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## Bunch length control with a beam energy control unit

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The bunch-to-bunch energy control of the electron beam is crucial in the continuous wave X-ray free-electron lasers facility(XFEL). Recently, a delay system based on double bend achromat (DBA) was proposed for the Shanghai High-Repetition-Rate XFEL and Extreme Light Facility(SHINE) to achieve this goal. On this basis, we further optimize this structure to realize the bunch length control while maintaining the electron beam qualities. In this paper, we will discuss the related lattice design and simulations.

### Footnotes

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