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## ALBA-II first tolerance studies

*Wednesday, 10 May 2023 16:30 (2 hours)*

While the design of the ALBA-II is in progress, it is required to assess the consequences of realistic imperfections such as alignment tolerances and magnetic errors. Compensation of insertion device induced optics variation has been studied, as well as the small impact on the emittance due the introduction of 3 T superbends. We demonstrate that non-linear optics is rather robust in the presence of realistic imperfections, rendering a  $\pm 6$  mm dynamic aperture sufficient for off-axis injection and a large momentum acceptance that supplies more than 5 hour lifetime including errors. Moreover, studies in preceding low emittance light sources required simulating the full accelerator tuning, starting from the commissioning phase. To this end, the Simulated Commissioning (SC) toolbox has been used intensively. Specific set of tests have been developed to complement the SC simulations including lifetime and dynamical aperture calculations assuming a possible operation in full coupling.

### Funding Agency

### Footnotes

### I have read and accept the Privacy Policy Statement

Yes

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