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A Flight Simulator to perform BBA at ATF

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The Accelerator Test Facility (ATF) at KEK serves as a prototype for the Final Focus Systems envisioned for future electron–positron linear colliders, including the International Linear Collider (ILC) and the Compact Linear Collider (CLIC). To enable both advanced RF-Track simulations and corrections of unwanted effects with a unified approach, a Python-based “Flight Simulator” was developed and integrated with the accelerator control system. This tool has been tested at ATF and will be employed to implement and validate correction schemes such as One-to-One correction, Dispersion Free Steering, and Wakefield Free Steering. This work presents the first results obtained by the Flight Simulator in ATF.

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