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## **Beam stability and reproducibility of a plasma-wakefield accelerator**

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Beam-driven plasma-wakefield acceleration has the potential to significantly reduce the footprint of future linear colliders and free-electron lasers. Such applications place stringent demands on beam quality and stability. While great strides have been made towards the preservation of incoming transverse and longitudinal beam quality, first applications now require demonstration of useful shot-to-shot reproducibility and stable continuous operation over many days. Driven by the superconducting linear accelerator of the free-electron laser FLASH, FLASHForward is keenly positioned to identify limiting factors for stability in beam-driven plasma-wakefield accelerators. In this contribution, the state-of-the-art beam stability and reproducibility at the FLASHForward facility is presented and its limitations discussed.

### **Acknowledgments**

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