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## **Analysis of energy spread and longitudinal field characteristics in flat beam PWFA**

*Tuesday 3 June 2025 16:00 (2 hours)*

The plasma wakefield excited by highly asymmetric drivers has recently been the subject of extensive study. Unlike the case of axisymmetric drivers, the transverse focusing and longitudinal fields exhibit coordinate dependencies. There are still open questions regarding the longitudinal characterization of this blowout regime. In this work, we analyze the transverse dependence of the longitudinal field and explore the transverse distribution of the energy spread in witness beams for drivers with varying asymmetric emittances. These analytical results are compared with Particle-in-Cell (PIC) simulations to provide deeper insights into the dynamics of asymmetric wakefield interactions.

### **Footnotes**

### **Paper preparation format**

LaTeX

### **Region represented**

America

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