

Snowmass21-AF6-AF4-168: Path towards a Beam-Driven Plasma Linear Collider

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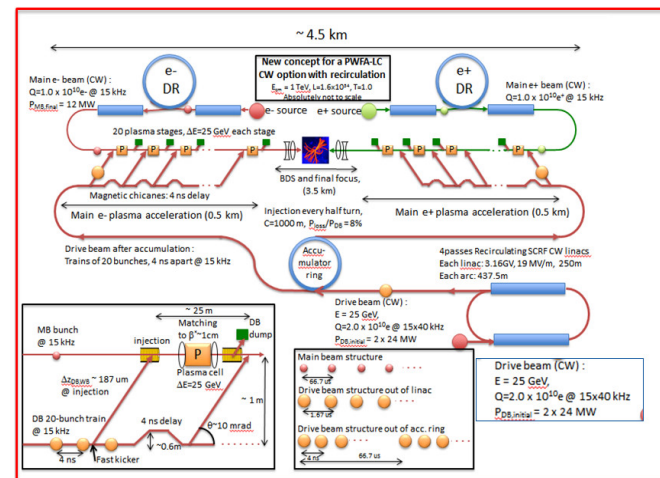
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Past and Ongoing Design Efforts

- There have been several attempts to outline what a beam-driven plasma linear collider (PLC) could look to like.
- Recent efforts include:
 - Snowmass 2013: [Beam-Driven PLC](#)
 - DOE 2016: [Advanced Accelerator Strategy Report](#)
 - ICFA 2017: [ANAR Roadmap](#)
 - ESPP 2019: [ALEGRO Contribution](#)



E. Adli *et. al.*, arXiv:1308.1145 [physics.acc-ph]

What does this LOI add that has not been described in previous work?

Two Thrusts for this LOI

1. Previous efforts to design a PLC were not *self-consistent*.
 - We propose an Integrated Design Study (IDS). The IDS is a significant effort analogous to the Eupraxia study.
2. The PLC as an energy upgrade to the ILC.
 - If the ILC is constructed, what happens after operations at or below 1 TeV are completed?
 - The PLC might bolster the case for the ILC if plasma-based upgrades are considered viable.
 - An ILC upgrade could be a good starting point for an IDS.

Path towards a Beam-Driven Plasma Linear Collider

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