



Contribution ID: 41

Type: **not specified**

Towards a Higgs Factory based on Proton-Driven Plasma Wakefield Acceleration

Wednesday 20 March 2024 16:30 (30 minutes)

A Higgs Factory is considered the highest priority next collider project by the high-energy physics community. Very advanced designs based on radio-frequency cavities exist, and variations on this approach are still being developed. Recently, also an option based on electron bunch driven plasma wakefield acceleration has been proposed.

Here, we discuss a further option based on proton-driven plasma wakefield acceleration. This option has significant potential advantages due to the high energy of the plasma wakefield driver, simplifying the plasma acceleration stage, and to the breadth of particle physics research it will make possible. Its success will depend on further developments in producing compact high-energy proton bunches at a high rate.

Available for oral presentation in a session

Yes

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Session Classification: Advanced collider concepts