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Overview of Wakefield Acceleration

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Recent years have seen spectacular progress in the development of innovative acceleration methods that are not based on traditional RF accelerating structures. These novel developments are at the interface of laser, plasma and accelerator physics and may potentially lead to much more compact and cost effective accelerator facilities. While primarily focusing on the ability to accelerate charged particles with much larger gradients than traditional RF, these new techniques have yet to demonstrate comparable performances to RF in terms of both beam parameters and reproducibility. In this lecture will review the most promising developments in new acceleration methods and it will present the status of ongoing projects including the European EuPRAXIA project.

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