



Contribution ID: 754

Type: talk

Latest results on critical-path R&D towards the Compact Linear Collider (CLIC) and related high-gradient linac applications

Saturday 25 July 2015 09:31 (30 minutes)

The Compact Linear Collider (CLIC) project explores the possibility of constructing a future multi-TeV linear electron-positron collider for high energy frontier physics post LHC. The CLIC-concept is based on high gradient normal-conducting accelerating structures. The RF power for the acceleration of the colliding beams is produced by a two beam acceleration scheme, where power is extracted from a high current drive beam that runs parallel with the main linac. A status report will be given on the most recent R&D progress towards achieving the CLIC design goals. This will include: high-gradient RF system design, tests and results, with application to future FEL facilities; drive-beam phase feed-forward system prototype results; beam dynamics studies at ATF2 and FACET and novel nano-beam emittance preservation techniques. The design parameters for an energy-staged implementation of CLIC will be presented.

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Session Classification: Accelerators

Track Classification: Accelerators