CERN-BINP workshop for young scientists in e+e- colliders



Contribution ID: 29

Type: not specified

High field studies for CLIC accelerating structures development

Tuesday 23 August 2016 16:00 (20 minutes)

The Compact Linear Collider (CLIC) is one of the candidates for next generation high energy linear colliders. In order to reach up to 3 TeV and maintain an acceptable length, the accelerating gradient must be above 100 MV/m. This results in surface electric fields of more than 200 MV/m on the copper surface of the structure. With such fields vacuum breakdowns with some probability occur and disrupt the accelerated beam. Breakdowns are one of the main performance limitations for CLIC and other high-gradient linacs. Whenever a breakdown happens, it results in partial or full loss of luminosity for that pulse. Obtaining a low breakdown rate (3E-7 breakdown per pulse per meter) in CLIC accelerating structures is a critical requirement for the successful it operation.

For understanding breakdown phenomena and for finding the best materials, treatment methods and study the conditioning process for accelerating structures of future colliders several DC-spark systems undergoing at CERN. Pulsed DC system, its opportunity, results and future plans will be present.

Primary author: Ms PROFATILOVA, Iaroslava (CERN/Institute of Aplied Physics NASU)
Presenter: Ms PROFATILOVA, Iaroslava (CERN/Institute of Aplied Physics NASU)
Session Classification: Young Scientists' Forum

Track Classification: Accelerator design and technologies