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EPS2011 - International Europhysics Conference on High Energy Physics

ABSTRACTS

Number of abstracts: 2

Session 4: Detector R & D and data handling

Detector Requirements and R&D Challenges at CLIC

- Speaker: **Christian Grefe** (CERN and University of Bonn)
- Status: **submitted** 12-May-2011
- **Abstract:**
  The expected results from the LHC experiments will give us an idea of the physics at the TeV scale. A lepton-collider at these energies will then be required to complement the information from the LHC, and to fully understand the physics. The Compact Linear Collider (CLIC) with a center of mass energy of up to 3TeV is a suitable concept for such a future e+-e−- linear-collider.
  The detector requirements for precision measurements at multi-TeV-energies in general and the special experimental conditions at the CLIC accelerator open a rich field of detector R&D opportunities. These requirements go beyond those for a detector at the ILC. Nevertheless, the R&D work that is being performed for the ILC detectors is an excellent starting point for these studies.
  The specific challenges are for example the use of dense calorimeter absorber materials for excellent jet energy resolutions up to the highest energies and low material silicon detectors with small pixel sizes. In addition, the high machine-induced-background levels in combination with the short time of only 0.5 ns between two bunch crossings at CLIC will require time-stamping capabilities throughout all sub-detectors.
  Preliminary results from the studies for the CLIC conceptual design report and ongoing R&D projects will be presented.

Session 6: Higgs and New Physics

Slepton analysis at CLIC_ILD

- Speaker: **Jacopo Nardulli** (CERN)
- Status: submitted 1-Jun-2011, **rejected**

28-Jun-2011

- **Abstract:**
  One of the main objectives of a linear collider experiments is the precision spectroscopy of new particles predicted in theories of physics beyond the Standard Model, such as Supersymmetry. For the CLIC CDR studies, with a centre-of-mass energy of 3 TeV, the cMSSM parameters chosen are such that the lightest neutralino has a mass of 340 GeV, the charginos and heavier neutralinos have masses below 1 TeV, the right handed selectron and smuon have a mass of 1010 GeV. The dominant decay

mode of the sleptons are two body decays into electron, muon and the lighter neutralino. The main observables are the slepton production cross sections, the sleptons and neutralino masses. The slepton analysis and mass determination will be presented together with the requirements on the momentum resolution, time stamping capability as well as the effects of initial state radiation and beamstrahlung.

-- Main.MichaelHauschild - 26-Mar-2011

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