



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 3096

Type: **Invited Speaker / Conférencier(ère) invité(e)**

(I) Instrumentation and Accelerator Technologies for ILC and Other Future Colliders

Tuesday, 7 June 2022 09:45 (25 minutes)

The Standard Model is the most comprehensive present day precision theory of particle interactions. Nonetheless, many key questions in subatomic physics and cosmology remain unanswered. The discovery of the Higgs boson at the Large Hadron Collider (LHC) has raised new questions. The International electron-positron Linear Collider (ILC) is ready to be deployed as the next high-energy world facility for particle physics. First, the ILC project status will be summarized. Then, a set of other potential lepton colliders, that could operate in the energy region from the Z boson mass to the TeV scale, will be presented. These colliders have a common goal of producing large samples of Higgs bosons, although they can also be operated to study other physics phenomena. Precision experiments at future colliders will be essential in unambiguously interpreting LHC physics discoveries. TeV scale physics demands much better performance than previous or current collider detectors have achieved. The collider and detector challenges will be described with focus on specific tracking, calorimetry and accelerator R&D activities in Canada. The overview will also cover a potential TRIUMF accelerator wire-corrector systems for the HL-LHC, depict ILC opportunities, and look at ways to nurse instrumentation for a new generation of particle detectors.

Primary author: BELLERIVE, Alain (Carleton University (CA))

Presenter: BELLERIVE, Alain (Carleton University (CA))

Session Classification: T1-3 New Directions in Accelerator-Based Experiments: Future Collider Experiments - Energy Frontier (PPD) | Nouvelles voies fondées sur des accélérateurs: expériences futures avec collisionneurs - frontière d'énergie (PPD)

Track Classification: Symposia Day (Tues. June 7) / Journée de symposiums (mardi, le 7 juin): Symposia Day (PPD) - New Directions in Accelerator-Based Experiments