



COLLOQUIA 2017-2018

Giovedì 22 Marzo 2018

Aula 102 "L. Giulotto", ore 16.00

Dipartimento di Fisica, via Bassi 6, Pavia

Linear Colliders – the Higgs boson microscopes

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Abstract: The discovery of the Higgs boson at the Large Hadron Collider (LHC) is one of the major triumphs of theoretical and experimental particle physics. Precise measurements of the Higgs boson properties will provide the direct experimental information on the electroweak symmetry breaking mechanism, and give insights into the physics beyond the Standard model. The need for high precision measurements in Higgs sector has strengthened the physics case for linear colliders, a next generation high energy physics experimental facilities. The clean experimental environment arising from e^+e^- collisions, well-known center-of-mass energy and fully reconstructable final state enable precision measurement in the Higgs sector and provide necessary sensitivity to explore the physics beyond the Standard Model. Currently two most mature options for a next generation machine are the International Linear Collider (ILC) and the Compact Linear Collider (CLIC) which have been studied and developed in detail for more than a decade. The comprehensive studies, performed for each of the options, have provided a compelling case for an e^+e^- linear collider operating as a Higgs factory, as well as at the terascale.