

INTERNSHIP PROGRAM FOR INTERNATIONAL STUDENTS

INTERNSHIP SUBJECT FORM

Name of the Host Laboratory	Laboratoire Leprince-Ringuet
Website of the Host Laboratory	http://llr.in2p3.fr
Research Group	CALICE/ILC: future e+e- colliders
Internship Supervisor	Vincent Boudry < Vincent.Boudry@in2p3.fr >
Internship Subject	Toward an optimized ultra-granular Electromagnetic Calorimeter
Student's level	<input checked="" type="checkbox"/> Advanced Undergraduate Students (3 rd or 4 th year) <input checked="" type="checkbox"/> Master's students (1 st or 2 nd year) <input type="checkbox"/> PhD students
Proposed Duration	<input checked="" type="checkbox"/> 3 months <input checked="" type="checkbox"/> 4 months <input checked="" type="checkbox"/> 5 months <input checked="" type="checkbox"/> 6 months
Prerequisites	Statistical math, basic knowledge in instrumentation and analysis tools (C++, Python).
Internship description (max. 15 lines)	<p>Several project of e⁺e⁻ colliders as "high factory" are being discussed (ILC, CLIC, FCC-ee, CEPC) for a more or less near future. All envisage highly granular calorimeters in their detectors, as they offer a huge potential in precision, as "5D" (x, y, z, Energy and Time) precision camera, not yet fully explored. The "CALICE & ILD" team of the LLR has been a pioneer in the elaboration of the concepts and prototypes for a Silicon-Tungsten Electromagnetic CALorimeter (SiW-ECAL) for all the future machines.</p> <p>It is proposed to the internship to work on the data analysis of the past and future beam tests (2 campaigns are foreseen in spring and autumn 2020) and GEANT4 simulations to provide an optimized measurement of electrons and photons showers parameters.</p> <p>Depending on the time scale a participation (1 week at DESY, Hamburg) to the beam test could be envisaged.</p>