TIPP 2011 - 2nd International Conference on Technology and Instrumentation in Particle Physics

Wednesday, 8 June 2011 - Tuesday, 14 June 2011

Chicago

Scientific Programme

Here is a rough general guideline: for the existing experiments/projects (running, under construction, or in the plan, or large R&D projects), we are soliciting two types of talks. One type is the overview talk (~25+5 min) for each experiment/project, the other type is more elaborate/focused/short talks on sub-detectors (15+5 mins). For individual smaller scale (R&D) work or new ideas, one abstract/talk should be good enough (length somewhat flexible, typically short). Abstracts for overview talks could be submitted to the Experimental Detector Systems or to the relevant track (talk/track assignment will be adjusted later). We would like to collect a set of overview talks in a coherent way from the major experiments/projects across the fields (collider experiments, rare kaon/muon experiments, neutrino experiments, dark matter experiments, astrophysics experiments, large scale R&D projects .... etc).

Since this is a science driven cross-disciplinary conference on Technology and Instrumentation, the overview talks from each experiment should not be the usual "beauty contest" type of presentations shown at typical physics or hardware conferences. The overview talk for a given experiment should start from science motivations, then focus on the challenges in technology and instrumentation, and how the experiment/project overcame the challenges, the experience of designing and building such systems and lessons learned. What would especially be good to hear is not only what the challenges were, but what challenges they are still struggling to overcome! This conference is not for polished talks about all that is beautiful and works well. We'd like to hear what the limitations are of the current experiments and how it limits the science and focus on ideas on how to break these barriers. The overview talks could reference/advertise the shorter (more focused) talks from the same experiment. One could think of the overview talks as "mini-plenary" talks (one per experiment/project). In some cases, especially large sub-detectors, it is also possible to consider an overview talk (with a few abstracts on the details).

Calorimetry

Detectors based on absorption of electromagnetic or hadronic showers in dense media. Examples include sampling calorimeters, crystal calorimeters, particle flow based devices and dual readout calorimeters.

Co-conveners: Jose Repond and Tohru Takeshita

Experimental Detector Systems

Multi-component detector systems and upgrades to existing detectors. This subject includes
special overview talks from the major experiments/projects across the fields (collider experiments, rare kaon/muon experiments, neutrino experiments, dark matter experiments, astrophysics experiments, large scale R&D projects .... etc). This conference and this track is not for polished talks about all that is beautiful and works well. We'd like to hear what the limitations are of the current experiments and how it limits the science and focus on ideas on how to break these barriers. The overview talks could reference/advertise the shorter (more focused) talks from the same experiment.
Co-conveners: Ariella Cattai and Junji Haba.

Gaseous Detectors

Detector technologies based on signal generation in gaseous media. Examples include proportional and ionization chambers, micropattern gas detectors, and time projection chambers.

Co-conveners: Paul Colas and Makoto Kobayashi.

Particle Identification

Detectors and detector systems capable of resolving particle species. Examples include time-of-flight systems, muon detectors, ring imaging Cerenkov systems, and transition radiation detectors.

Co-conveners: Toru Iijima and TBD.

Photon Detectors

This category includes photon detectors, exclusive of electromagnetic calorimeters. Examples include phototubes, silicon photomultipliers, photocathode developments and x-ray detectors.

Co-converners: Razmik Mirzoyan and Tsuyoshi Nakaya.

Semiconductor Detectors

Detector technologies based on charge collection in semiconducting devices. Examples include silicon strip and pixel detectors, SiC-based detectors, and diamond-based detectors.

Co-conveners: Paula Collins and Petra Riedler

Dark Matter Detectors

Technology used in searches for dark matter. Examples include noble liquid detectors, bubble chambers and semiconductor-based detectors.

Co-conveners: Jeter Hall and Kara Hoffman.

Detectors for neutrino physics

Detectors for neutrino and rare decay physics. Examples include large water Cerenkov and liquid Argon neutrino detector arrays. This subject also includes instrumentation for studies of double beta decay, neutrino mass and proton decay.

Co-conveners: Antonio Ereditato and Mitchell Soderberg.

Astrophysics and Space Instrumentation

Instrumentation intended for ground, upper atmosphere and space based studies. Examples include gamma ray satellites, cosmic microwave background (CMB) studies, instrumentation for x-ray astronomy, and technology for ground-based telescopes.

Co-conveners: Akito Kusaka and Oswald Siegmund

Instrumentation for Medical, Biological and Materials Research

Applications of Particle Physics technology to other research and commercial fields. Examples include x-ray focal plane systems, radiography systems, PET instrumentation, and systems for homeland security.

Co-conveners: Chin-Tu Chen and Peter Weilhammer.

Front-end Electronics

Electronics for amplification and signal conditioning for raw detector signals. Examples include transistor technologies, front-end circuits, 3D vertically integrated circuits, and circuits for extreme environments.

Co-conveners: Jean-Pierre Walder and Arai Yasuo.

Trigger and Data Acquisition Systems

Electronics and software for event triggering and data acquisition. Examples include level 1 and 2 trigger systems for collider experiments, data aqusition systems based on xTCA, tracking trigger systems, and higher level trigger processor farms.

Co-conveners: Riccardo Paoletti and Fred Wickens

Machine Detector Interface and Beam Instrumentation

Instrumentation utilized to monitor and characterize particle beams and sources. This subject also includes studies and instrumentations for the machine detector interface regions. Examples include beam position and profile monitors, emittance measurements, background simulations and accelerator control systems.

Co-conveners: Philip Burrows and Manfred Wendt