[Room/Salle : Kildonan] ***Chair: F. Corriveau, McGill U.***

MO-A8-1 10h00

SCOTT MICHAEL OSER, University of British Columbia

Long-Baseline Neutrino Oscillations at K2K and J-PARC

Intense neutrino beams produced by accelerators can be exploited by long-baseline oscillation experiments to measure neutrino mixing parameters. By comparing the flux and flavour content of the beam at its production site to the beam composition at a far detector located hundreds of kilometers away, transition probabilities between neutrino flavours can be measured as a function of neutrino energy, probing the oscillation pattern. The K2K experiment uses a muon neutrino beam produced at KEK, Japan and directed towards the Super-Kamiokande detector to measure neutrino masses and mixing angles associated with atmospheric neutrino oscillations. A future long-baseline experiment will direct a high-intensity beam from the J-PARC proton driver in Tokai, Japan towards Super-Kamiokande, with the goal of measuring the muon neutrino to electron neutrino conversion probability. The J-PARC neutrino project was funded in December 2003. A future phase of the J-PARC project will attempt to observe CP violation effects in neutrino oscillations by comparing the muon neutrino to electron neutrino oscillation probability with the oscillation probability for antineutrinos. CP violation by neutrinos may have produced the matter-antimatter asymmetry observed in the universe today by a leptogenesis mechanism.

MO-A8-2 **10h30**

PETER W. KRIEGER, University of Toronto

The ATLAS Detector at the Large Hadron Collider

The ATLAS detector is one of two general-purpose detectors that will record the products of collisions of 7 TeV beams of protons at the Large Hadron Collider at CERN, beginning in 2007. After many years of R&D and construction, the project is now at the start of the assembly phase, in which sub-detectors built at institutions all over the world are beginning to be integrated into the final detector. In particular, years of work on the Canadian-built components of the ATLAS liquid argon calorimeter are now approaching completion. This talk will review the Canadian contributions to ATLAS as well as the status of the detector integration at CERN.

11h00 **Coffee Break / Pause café**

MO-A8-3 **11h15**

DEAN KARLEN, University of Victoria / TRIUMF

The Future Linear Collider Project

A linear electron positron collider operating with a centre-of-mass energy between 500 GeV and 1 TeV would provide essential information to understand the way the symmetry between the electromagnetic and weak forces is broken and point to a more complete theory of particle physics. In the recent years, the worldwide particle physics community has come together to agree that this is the top priority for new facilities in this field. This presentation will review the physics goals, the current status, and Canada's involvement in the linear collider project.

MO-A8-4 **11h45**

Radiation Tolerant Microelectronics by Design, **Douglas M. Gingrich** and L. Chen, *University of Alberta/TRIUMF* — The radiation environment of high-energy physics experiments have recently become a major concern. Special precautions need to be taken to ensure that the front-end readout electronics will perform reliably over the lifetime of the experiment. Using advanced commercial microelectronics fabrication facilities, along with radiation tolerant circuit designs, has proven to be an effective solution to the radiation problem. Ionizing radiation causes leakage currents within and between the transistors comprising the circuits. By making a modification to the conventional transistor geometry, it is possible to eliminate these radiation-induced current leakage paths. We demonstrate the effectiveness of the radiation-tolerant by design approach. The performance of single transistors, as well as, complete application specific integrated circuits before and after being subjected to ionizing radiation will be presented.

MO-A8-5 **12h00**

BaF_2 Detector Development, **Jérôme Gauthier** et le Groupe de Recherche en Physique des Ions Lourds, *Université Laval* — In the heavy ion collisions physics domain, one of the most important points is the quality and the efficiency of the detectors used to detect and identify the reaction products. We work presently on a detector using BaF_2 scintillator for the detection and identification of the isotopes from Z=1 to 3 or more down to low energy range (E < 5 MeV/A). Our technique will be to use PMT fitting with the tow spectral range of the fast and slow components of the crystal and by combining the pulse shape discrimination and time of flight technique. We project to upgrade our detector array with this type of detectors combined with the phoswich technique to achieve an isotopic resolution up to Z=16 for future experiments with ISAC-II exotic beams.

MO-A8-6 **12h15**

HERACLES Multidetector Calibration*, **René Roy**, Josiane Moisan and le Groupe de recherche en physique des ions lourds, *Université Laval* — HERACLES is a 4π multi detector made of 7 rings of detectors. It was used in a heavy-ion collisions experiment at Texas A&M University in 2001. The detectors are made of scintillator material, phoswich for forward rings and CsI for backward rings. Scintillators emit light when charged particles penetrate them. It is important to know the energy of a particle corresponding to a certain amount of light emitted in order to analyse the data collected in the experiment. Therefore we have to use the Parlog parameterization formula which is the best one found up to now for this kind of work.

* This work is being supported by CRSNG.

12h30 **Session Ends / Fin de la session**