2002 CONGRESS – MONDAY SESSION MO-A8
CONGRÈS 2002 - RÉSUMÉS DE SESSION MO-A8 (Lundi)

[MO-A8] PRECISION FRONTIER / LES LIMITES DE LA PRÉCISION — MONDAY, JUNE 3 / LUNDI LE 3 JUIN

ROOM / SALLE 2004 F ***Chair: A. Konaka, TRIUMF***

MO-A8-1 10h00

DAVID R. GILL, TRIUMF

TWIST, A Precision Measurement of Muon Decay

The physics goal of the TRIUMF Weak Interaction Symmetry Test (TWIST) experiment is a precision measurement of the positive muon decay distribution. Since muon decay involves only the weak interaction and is a major input to the Standard Model the TWIST results will provide a test of these inputs and provide an excellent window in which to search for physics beyond the Standard Model. The TWIST spectrometer was assembled and an engineering run was completed in the fall of 2001. TWIST will take its first physics data in 2002. The physics goals, the spectrometer, some results from the engineering run and the plans for 2002 will be described.

MO-A8-2 10h30

Testing Lepton Universality Using Tau Decays*, **L.L. Kormos**, *University of Victoria* — The leptonic O branching ratios can be used to test the Standard Model through universality tests, as well as to place constraints on some of the models which take us into the realm of non-Standard Model physics. The latest OPAL measurement of the branching ratio of the On decay is presented. The branching ratio is measured in two largely independent ways, using data from different subdetectors within the OPAL detector. While one method uses the tracking chambers and muon chambers, the other method uses calorimeter information, allowing for stringent systematic checks between the two methods. The importance of the increased precision obtained by this technique will also be discussed.

MO-A8-3 10h45

CP violation in the decay $B^0 \to J/O K_L$ at BELLE*, **W. Trischuk**, *University of Toronto* — The BELLE experiment has been designed to search for, and measure, CP violation in *B* meson decay. It has now collected over 100 million *B* mesons at the KEK-B collider in Japan -- the highest luminosity accelerator in the world. With this data we have observed CP violation in several B decay channels. After describing the experiment I will explain how BELLE reconstructs $B^0 \to J/O K_L$ candidates and uses them to measure sin(2 O_1). The detection of K_L mesons in the final state is experimentally challenging, but also rewarding as the K_L has the opposite CP from the more easily studied $B^0 \to J/O K_S$ decays, providing an important systematic cross-check in the measurement of sin(2 O_1).

11h00 Coffee Break / Pause café

MO-A8-4 11h15

R.V. KOWALEWSKI, University of Victoria

New Results from BaBar

The BaBar experiment at the PEP-II O factory at SLAC and a competing experiment in Japan (Belle) announced the observation of CP violation in O meson decays last summer. BaBar has recorded over 100 million O meson decays, and the excellent performance of the PEP-II accelerator promises far larger samples in the future. In this talk new results will be presented on CP asymmetries, and the consistency of these results with the Standard Model and their impact on our understanding of the quark mixing matrix will be discussed. In addition, results will be shown on rare O decays, which probe physics beyond the Standard Model. Prospects for future improvements in these and related areas will be presented.

MO-A8-5 11h45

Determination of |Vub| using inclusive semileptonic O decays in BaBar, **D. Fortin,** R. Kowalewski, S. Menke, *University of Victoria* — The determination of |Vub| is crucial in testing the quark sector of and in understanding CP violation in the Standard Model. A new technique using neutrino reconstruction allows a reduction in the theoretical error associated with extracting |Vub| from semileptonic O decays. A determination of |Vub| using this technique on data collected with the BaBar detector at the Stanford Linear Accelerator Center will be presented.

MO-A8-6 12h00

Rare Radiative O Decays to Neutrinos, C. Hearty, **P. Jackson**, R. Kowalewski, *University of Victoria* — BaBar Collaboration. The 2nd order weak radiative decay b -> s nu nubar is theoretically the cleanest of rare O decays, and probes new physics at high mass scales through contributions to the internal loops. We present preliminary results on a search for the decay O+ -> K+ nu nubar using data collected with the BaBar detector at the Stanford Linear Accelerator Laboratory. The search uses a new technique to enhance the sensitivity for finding this experimentally challenging multi-neutrino final state.

MO-A8-7 12h15

Search for O ▾ OO, **M. Roney**, *University of Victoria* — We report on a search for the decay O ▾ OO using e⁺e⁻ ▾ GO data collected with the Babar detector at the SLAC O-factory during the 2000 and 2001 runs. Although this decay is effectively forbidden in the standard model, it is expected in some extensions at rates as high as 10^{-6}.

12h30 Session Ends / Fin de la session