Contribution ID : **26** Type : **not specified**

Recent results from NA48 and NA62

Monday, 4 June 2012 17:20 (0:20)

Abstract content

High precision measurement of the form factors of the semileptonic decays K+- -> pi0 l+- nu (Kl3) ========== Semileptonic kaon decays offer the most precise determination of the CKM matrix element |Vus|. The experimental precision is however limited by the knowledge of the form factors of this decay, since these enter both the phase space integral and the detector acceptances. The NA48/2 experiment presents new measurements of the form factors of the semileptonic decays of charged kaons, based on 4.3 million Ke3 and 3.5 million Kmu3 decays, both with negligible background. The result matches the precision of the current world average on the vector and scalar form factors and allows to significantly reduce the form factor uncertainty on |Vus|. In addition, the comparison of both channels sets tight constraints on lepton flavor violation and other possible new physics.

Rare kaon decay measurements with NA62 minumum bias data.

The NA62 experiment at CERN collected a large sample of charged kaon decays with a low intensity beam and minimum bias trigger conditions in 2007. This allowed measurements of a number of rare decays that are difficult to address in conventional high intensity experiments with highly selectivite trigger conditions. In particular, large samples of K+- –> pi gamma gamma and K+- –> e nu gamma decays have been collected, allowing precision tests of the Chiral Perturbation Theory. The status and first results of these analyses are presented.

Lepton Universality Tests in Kaon Decays at NA62

A precision measurement of the helicity-suppressed ratio RK of the K+- –> e+- nu and K+- –> mu+- nu decay rates has been performed using the full data set collected by the NA62 experiment in 2007–2008. The result is in agreement with the Standard Model expectation, and constrains two-Higgs-voublets extension of the Standard Model.

The NA62 experiment at CERN

The rare decays K->pnn are excellent processes to make tests of new physics at the highest scale complementary to LHC thanks to their theoretically cleaness. The NA62 experiment at CERN SPS aims to cllect of the order of 100 K+->p+nn events in two years of data taking, keeping the background at the level of 10%. The physics prospects and the status of the construction of the experiment will be presented.

Primary author(s) : LAZZERONI, Cristina (University of Birmingham, UK); Prof. ANZIVINO, Giuseppina (University of Perugia and INFN)

Presenter(s) : Prof. ANZIVINO, Giuseppina (University of Perugia and INFN)

Session Classification : BSM

Track Classification : Particles