Experimental challenges in $K \to \pi\nu\bar{\nu}$ measurements

The workshop intends to offer an occasion to discuss the state of the art in K to $\pi\nu\bar{\nu}$ measurements, giving particular emphasis to technical discussions of the experimental aspects. It addresses both to the physicists presently active in the field and to those that have an interest in the physics of these experiments and wish to learn more of the experimental problems.

The decays of charged and neutral kaons to $\pi\nu\bar{\nu}$ offer a unique opportunity to look for possible physics beyond the standard model by searching for inconsistencies in a set of theoretically clean observables which overconstrain the parameters of the CKM matrix. After the first generation of exploratory experiments, with branching ratio sensitivities above or just around the level predicted by the standard model, the study of these decays is entering a new phase. Several experiments being proposed or about to start construction aim at sensitivities that will allow branching ratio measurements with precisions in the order of 10% for the branching ratios predicted by the standard model.

All these measurement have to face very hard experimental problems related to the need to get background suppressions better than 10^{10} in a high rate environment and with good detection efficiencies. Since some of the problems are common to the different experiments, this workshop intends to offer an occasion for the different experiments to share information and to discuss the approaches to these experimental aspects.

The meeting will have participants from each of the experimental communities active in this field. The program will be organized over two days of work in 3 different sessions.

Session 1. Introductory session (invited talks)

Theoretical introduction and overview of the active and proposed experiments on $K \to \pi\nu\bar{\nu}$

Session 2. Contributed and invited talks on the experimental aspects of the measurements.

Subjects covered include: physics limitations to veto efficiencies; measurements of photon veto efficiencies; simulations of photonuclear reactions; measurements of charged particle detection efficiencies; beam shielding and halo measurements; tracking in high rate conditions; double pulse resolution in photodetectors; triggering; analysis techniques and background measurement

Session 3. Working groups are formed for informal discussion on specific areas

Veto counters
Beams
Detectors and tracking
Triggering

with final summary reports of the conveners of the working groups.