

Charme Mix

Dr. Frederic Blanc

EPFL SB IPHYS LPHE-OS, Lausanne

Collisions Neutral meson mixing allows to probe properties of the quark-mixing (CKM) matrix. The neutral D^0 meson gives the unique opportunity to study mixing involving up-type quarks. Although long-distance effects complicate the calculations for D^0 mixing and CP violation, the Standard Model of particle physics predicts that CP violation in charm decays must be small. This makes the D^0 system very sensitive to physics beyond the Standard Model, which could affect D^0 mixing and CP violation at a measurable level. It is therefore essential to study and measure precisely the mixing properties of the D^0 meson.

In this seminar, I will review the status of our knowledge on D^0 mixing. Recent results from the LHCb experiment will be presented, with an emphasis on the development of new experimental techniques. Finally, the implications of these results on CKM physics and the future prospects for the study of D^0 mixing will be discussed.