

## Group report: Heavy flavour physics

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### Participants:

Tariq Aziz, Amitava Datta, N. G. Deshpande, P. H. Frampton, U-G. Meissner, J. Pasupathy, Sreerup Raychaudhury, L. M. Sehgal, Gurpreet Kaur Sidana, S. Uma Sankar

This working group discussed several topics of heavy flavour physics. Some of them are listed below.

1. Tariq Aziz gave a talk on the decay time measurements of the  $B_d$  and  $B_s$  mesons at LEP. These measurements can be used to determine  $\Delta m_{B_d}$  and  $\Delta m_{B_s}$ . The ratio of these mass differences can provide a sensitive test of the three generational unitarity of CKM matrix.
2. Ulf-G. Meissner gave a talk on the application of the techniques of chiral perturbation theory to the non-leptonic decays of kaons.
3. L. M. Sehgal gave a talk on the issue of final state interactions in the non-leptonic  $B$  meson decays. In the two pion decay of neutral kaons, the final state contains only two isospin states which can interact with each other via strong interactions. Therefore these decays can simply be parametrized by two amplitudes and two phases. But in  $B$  meson decays, a large number of intermediate non-leptonic states, which can interact with one another via strong interactions, are kinematically accessible. It is impossible to take into account all of them. It is desirable to develop ways of parametrizing how the final state interactions (FSIs) affect the two meson decays of the  $B$  mesons. This will be extremely useful in CP violation measurements in  $B$  mesons.
4. J. Pasupathy gave a talk on the relation between QCD sum rules and the Isgur-Wise Heavy Quark symmetry.
5. Sreerup Raychaudhury gave a talk on a four generational model in which one can make the fermions of the first three generations light without much fine-tuning. The fourth generation, however, will be very massive.