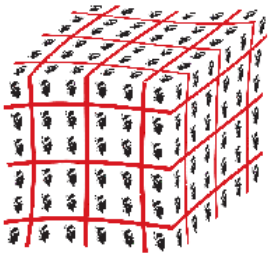

Contribution ID: **39** Type: **not specified**

Analysis of the $N_f = 2 + 1$ lattice QCD results on the lowest-lying baryon masses using covariant ChPT

Tuesday, 15 June 2010 11:10 (20 minutes)

We present an analysis of the baryon-octet and -decuplet masses using covariant SU(3)-flavor chiral perturbation theory up to next-to-leading order. Besides the description of the physical masses we address the problem of the lattice QCD extrapolation. More precisely, we study the $N_f = 2 + 1$ results recently provided by the PACS-CS, LHPC and HSC collaborations. We show that a good description of the lattice points can be achieved at next-to-leading order with the covariant loop amplitudes and phenomenologically determined values for the meson-baryon couplings. Furthermore, the extrapolations to the physical point of the results are found to be better than the linear ones given at leading-order by the Gell-Mann-Okubo approach. The importance that a reliable combination of lattice QCD and chiral perturbation theory may have for the determination of the LECs in the baryonic sector is emphasized with the prediction of the pion-baryon and strange-baryon sigma terms.

Please, insert your presentation type (talk, poster)

talk

Primary author: MARTIN CAMALICH, Jorge (IFIC-Valencia)

Co-authors: Dr GENG, Lisheng (TUM-München); Dr VICENTE VACAS, Manuel Jose (IFIC-Valencia)

Presenter: MARTIN CAMALICH, Jorge (IFIC-Valencia)

Session Classification: Parallel 24: Chiral symmetry

Track Classification: Chiral symmetry