

PHYSIKALISCHES KOLLOQUIUM

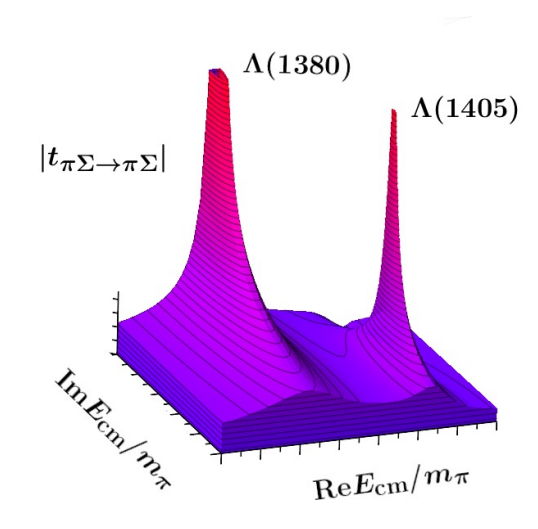
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HYPERON SCATTERING AMPLITUDES FROM LATTICE QCD

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The properties of baryons depend sensitively on their quark contents. Scattering amplitudes involving hyperons, which contain strange quarks in addition to up and down quarks, are essential phenomenological inputs in hadron and nuclear physics. However, many hyperon scattering processes are difficult to determine experimentally. First principles Monte Carlo simulations of QCD, the quantum field theory underlying quark and gluon interactions, can compute these otherwise inaccessible processes and explore the effects of varying quark masses. To this end, recent lattice QCD simulation results are presented on the structure of the long-controversial $\Lambda(1405)$ baryon. A small perturbation of the quark masses from their physical values reveals two nearby excitations, in agreement with chiral effective theory. Prospects for future computations of hyperon scattering amplitudes are also discussed.



Die Einführung erfolgt durch Mikhail Mikhasenko

Die Fakultät lädt alle Interessierten herzlich ein. Die Veranstaltung findet im Hörsaal HNB statt.

