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Light flavor symmetry breaking for heavy baryons

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Abstract content
   (Max 300 words)

We are interested in the soliton description of baryons with a single heavy quark (charm or bottom). In this approach such baryons emerge as composites of a soliton of mesons built from light quarks (up, down, strange) and a meson field that is bound to the soliton and contains a heavy quark. The soliton must then be quantized as a diquark because the fermionic character arises from binding to the heavy meson field. We are particularly interested in baryons that contain strange flavors; in the quark model that corresponds to, say, up-strange-bottom. Thus the flavor symmetry breaking among the light quarks must be incorporated when constructing diquark states. Here we present computations of the diquark eigen-energies and eigen-functions that incorporates all orders of the light flavor symmetry breaking. We also compare these results to a leading order treatment of flavor symmetry breaking. This is a first step towards a comprehensive description of heavy baryons in a soliton model.

Apply to be
 consider for a student
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Yes

Level for award
 (Hons, MSc,
   PhD)?

PhD

Main supervisor (name and email)
and his / her institution

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Would you like to
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No

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