PHENOMENOLOGICAL CONSEQUENCES OF THE CHIRAL SOLITON APPROACH.

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The chiral soliton approach, which is based on few fundamental principles and ingredients incorporated in the model lagrangian, leads to definite predictions which can be observed, and probably have been observed experimentally. The low-lying dibaryon state with isospin equal to spin $I = J = 1$ and positive parity has been predicted [1] at the energy several tens of Mev above two-nucleon threshold and below the $NN\pi$ threshold. Such electromagnetically decaying supernarrow state has been seen in two different experiments [2, 3]. The checking and confirmation of these results in experiments with better resolution is of urgent importance, because such dibaryon is in fact new elementary particle with baryon number $B = 2$.

Another kind of predictions of the chiral soliton models is that of existence of multibaryons with flavor different from (u, d) flavors: strangeness, charm or beauty [4] , see also contribution [5] to this conference. The charmed or beauty hypernuclei within the chiral soliton approach are predicted to be bound stronger than strange hypernuclei.

Many of these results are based on the multiskyrmion configurations obtained within the so called rational map approximation (RMA) [6]. RMA is good for not very large baryon numbers $(B \leq\sim 12)$, and is worse for B beginning with several tens, when configurations like skyrmion crystals have probably lower energy. RMA multiskyrmions at large B have a form of spherical bubble of matter with energy and baryon number concentrated in its shell. The width and average mass density of the shell are constant at large B (similar to the property of saturation) [7], it looks like spherical honeycomb with trivalent bonds between edges. So, the 3-string junction place a basic role in formation of such shell-like objects. The $B = 2$ torus-like configuration can be considered as a closed string. Therefore, there is a link between string-junction picture of hadrons (baryons) [8, 9] and the chiral soliton approach based on the truncated effective field theory lagrangian.

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