

## Rescaling of quantized skyrmions; analytical treatment and numerical estimates

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The role of rescaling (expansion or squeezing) of quantized skyrmions [1,2] is studied for the spectrum of baryons beginning with nucleon and  $\Delta(1232)$ , and with flavors strangeness, charm or beauty. The expansion of skyrmions due to the centrifugal forces has influence on the masses of baryons without flavor ( $N$  and especially  $\Delta$ ); this effect leads to correction of the well known results by Adkins, Nappi, Witten, and demands certain revision of the fit of the model, proposed in [3,4]. In the case of chiral symmetry  $\text{cite{anw}}$  analytical treatment of the effect confirms results of numerical computations.

The rescaling of skyrmions has small influence on the spectrum of strange baryons, it is more important for the case of charm, and crucial for baryons with beauty quantum number, where strong squeezing takes place [5]. Two competing tendencies are clearly observed: expansion of skyrmions when isospin (or spin) increases, and squeezing with increasing mass of the flavor. For the case of beauty baryon  $\Lambda_b$  satisfactory agreement with data can be reached for the value  $r_b = F_B/F_\pi \simeq 2.6$ , for the case of  $\Sigma_b$  there should be  $r_b \sim 2$ , so for the beauty flavor the method seems to be not quite satisfactory because of certain intrinsic discrepancies. Some pentaquark states with hidden strangeness, charm or beauty are considered as well [5].

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**Primary author(s)** : Prof. KOPELIOVICH, Vladimir (INR of RAS)

**Presenter(s)** : Prof. KOPELIOVICH, Vladimir (INR of RAS)

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