

# 708<sup>th</sup> ASRC Seminar

Date: 14:00 ~ 15:30 Wed., January 17

Location: 302 Meeting Room, ASRC Bldg.

Speaker: Professor Kim HyunChul  
(Inha University)

Title: Unified description of baryons in a mean-field approach

**Abstract:** In the large  $N_c$  limit, the nucleon can be viewed as an object consisting of  $N_c$  valence quarks. The presence of the  $N_c$  valence quarks make the vacuum polarized and create the mesonic background fields. Then the  $N_c$  valence quarks are self-consistently influenced and bound by the meson mean fields. We will show how both light and heavy baryons can be described by this mean-field approach. We also discuss the properties of excited  $\Omega_c$ s newly found by the LHCb and Belle Collaborations. Excited baryons can be also illustrated within this mean-field approach. The confining background field plays an essential role in explaining spectrum of excited baryons. To have a stable baryon state, we show that the linear-rising potential should be saturated at a certain energy scale. If we choose this scale to be the mass of the dynamical quark, then we are able to explain properties of the lowest-lying baryons. We present the mass spectra of the excited baryons. The mass ordering of the  $N^*$  resonances and the missing resonance puzzles will be discussed.

なお、今回のセミナーは、第68回「原子核ハドロン物理セミナー」  
を兼ねております。セミナー内容は

[http://silver.j-parc.jp/hadron/hadron\\_seminar/index.html](http://silver.j-parc.jp/hadron/hadron_seminar/index.html)  
でご覧になれます。

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