Heavy baryon excitations with functional calculations using a quark-diquark model

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Context

Low-energy QCD → **Non-perturbative** toolset

Dyson Schwinger & **Bethe Salpeter** equations

Results

Diquark contributions

$nc > nn$

$\sim 60\%$ $\sim 40\%$

Partial waves: s-wave p-wave d-wave

$\Lambda_c [1/2^+]$

$\Sigma_c [1/2^+]$

0   25   50   75   100
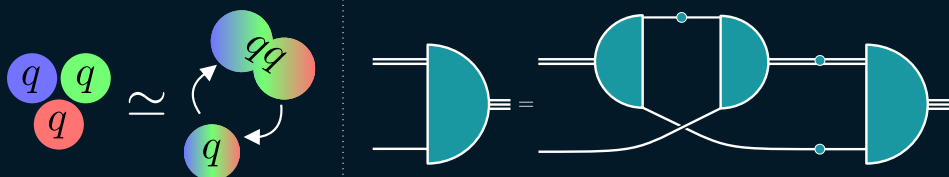
Objectives

Calculate **masses** & **structure variables**

➜ State = **Dirac** x **Flavor** x **Color** | All of them contribute

➜ Formulate as **eigenvalue equation** & **(M, EV)** plot

➜ Do **overlap integral** & build **extrapolation scheme**
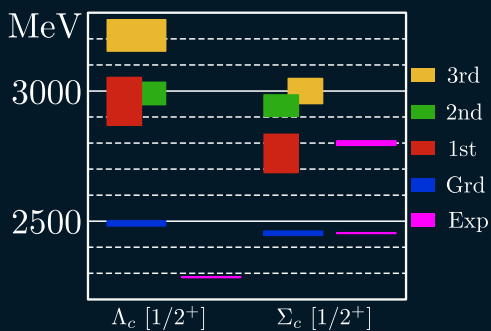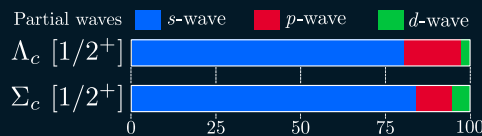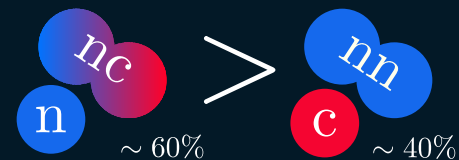
Future

The **2-body picture** still holds many mysteries!

➜ Implement more of the **qq spectrum** & **all flavors**

➜ Comparisions with **3-body?**

➜ Experimental quantities for **qq contributions?**