Possible research subjects on J-PARC Korean Beam Line

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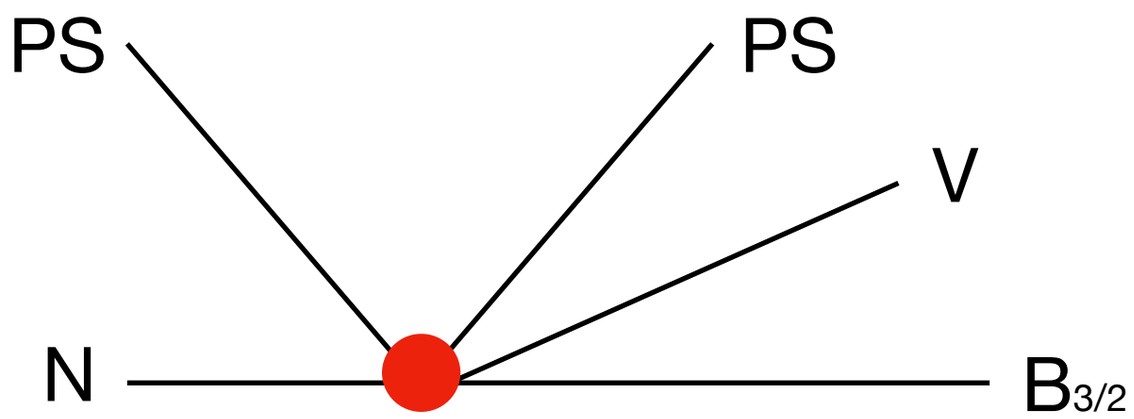
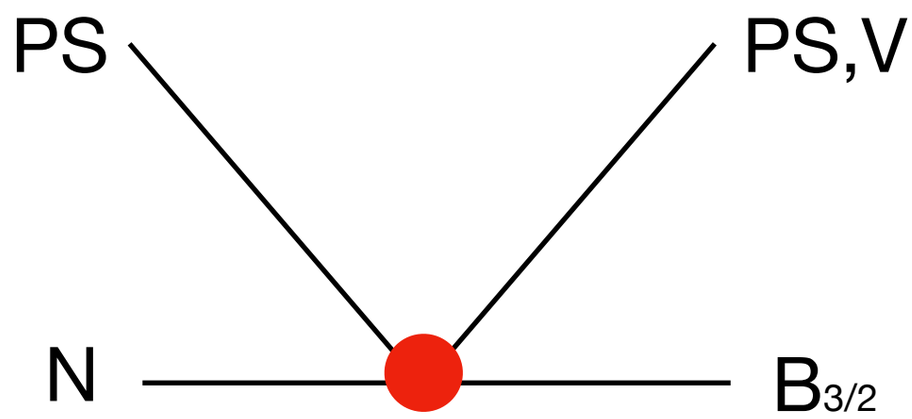
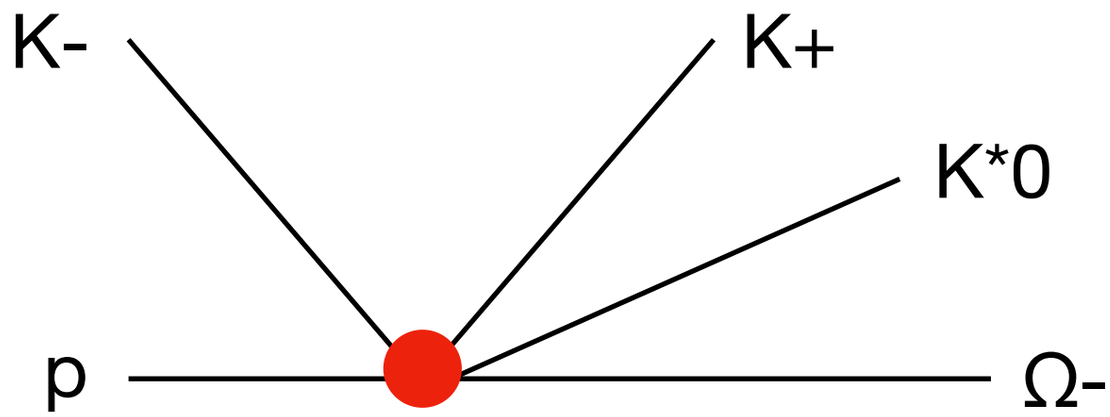
Idea 1

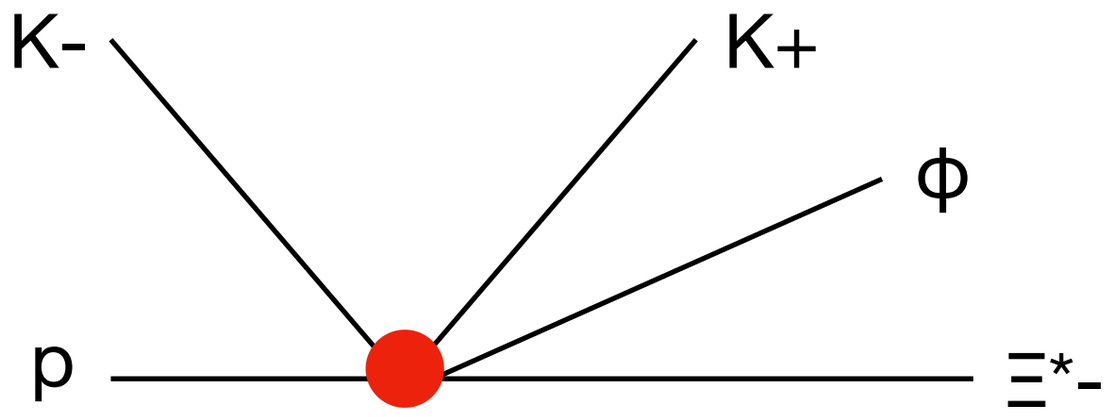




Testing ground for the (next) V-B3/2 interactions, providing information for the coupled-channel method and V⊗V⊗spinor interactions with higher spin resonances in terms of the Rarita-Schwinger formalism, together with usual chiral interactions, with the help of the higher PS-meson energy.

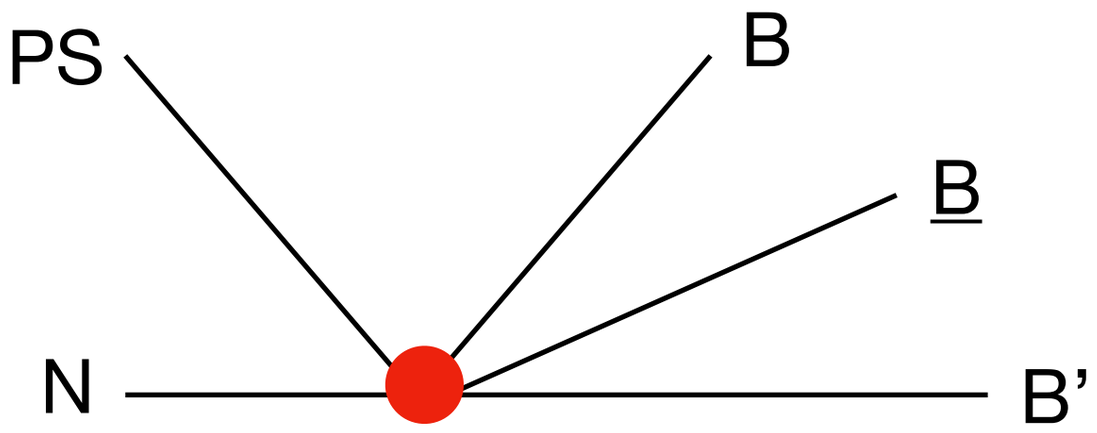
Idea 2

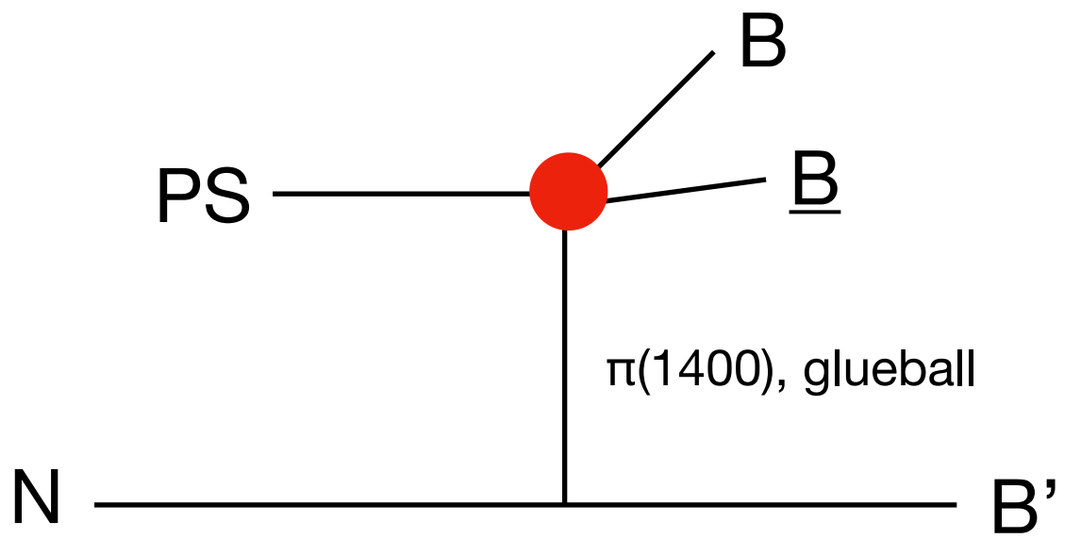




Possible processes will provide the above-mentioned information. Simultaneously, manifesting the difference between the hidden- and open-flavor channels: OZI rule still works?

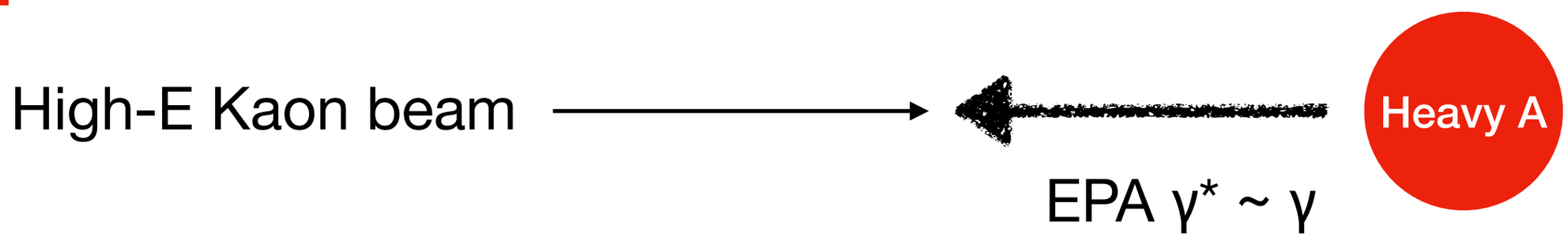
Idea 3





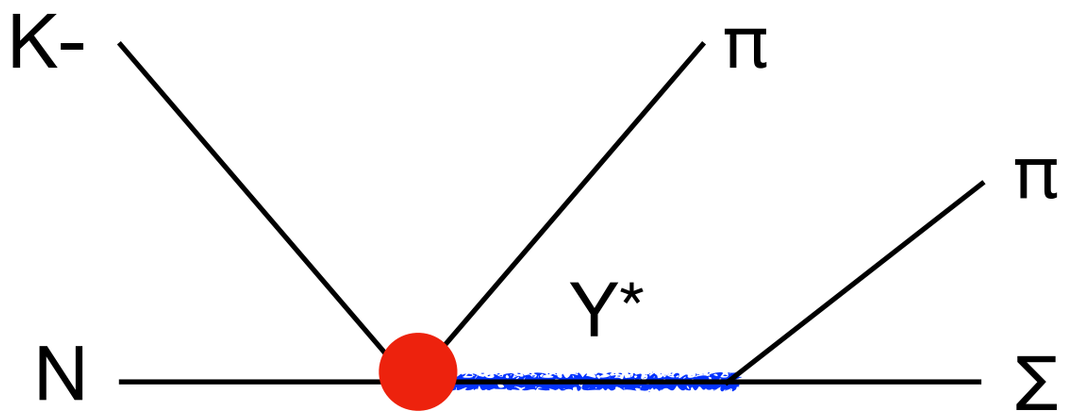
Testing ground for vacuum structure and its fluctuations, such as the glueball, anti-hadron, etc. via pair production. This will also help the understanding of the gluon contributions to the exotics, i.e., hybrids, possibly π(1400) for instance. Higher PS-beam energy is the key role here.

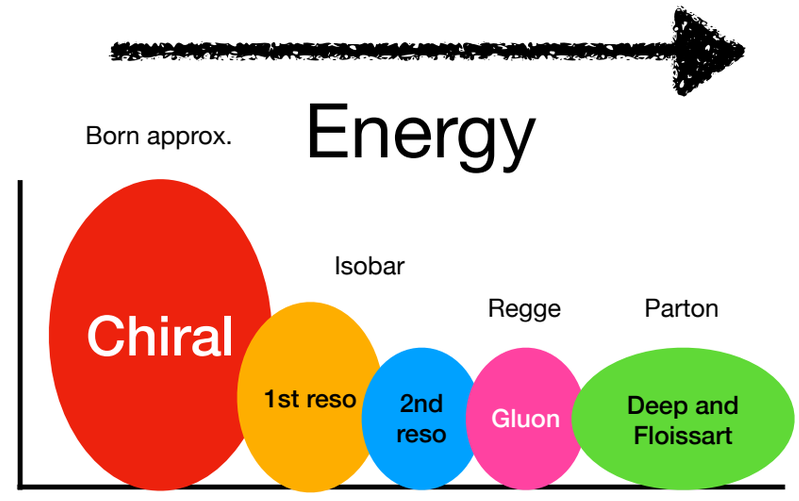
Idea 4



Considering the kaon beam energy with heavy nucleus target, er can perform a UPC-like thing in the experiment. Although Q^2 is small, we can probe EM structure of the kaon, such as the EM radius. We may also explore K->K* transition structure. Possibly small-x physics as well.

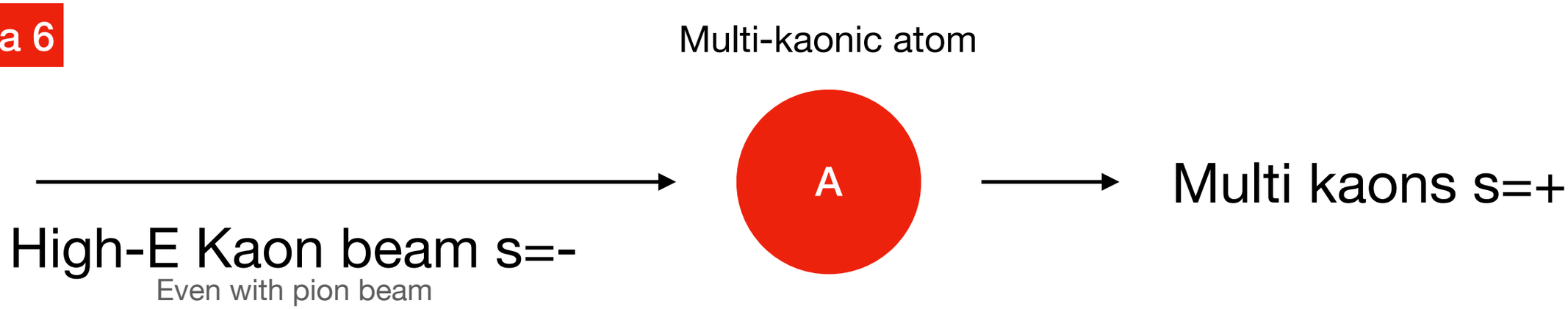
Idea 5





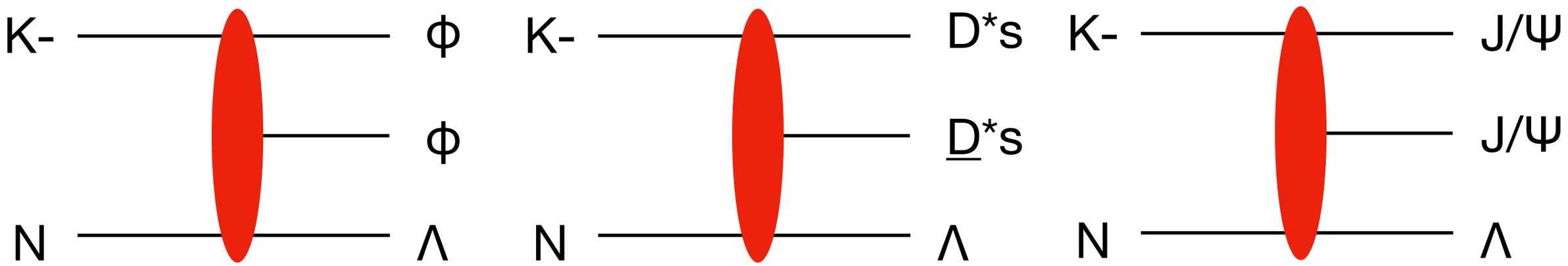
Basic hyperon resonance search beyond the 1st resonance region and pproacing to the Regge and deep scattering regions, exploring an interpolation between them. Also testing Floissart bound ~ Log[s] ?!?!.

Idea 6



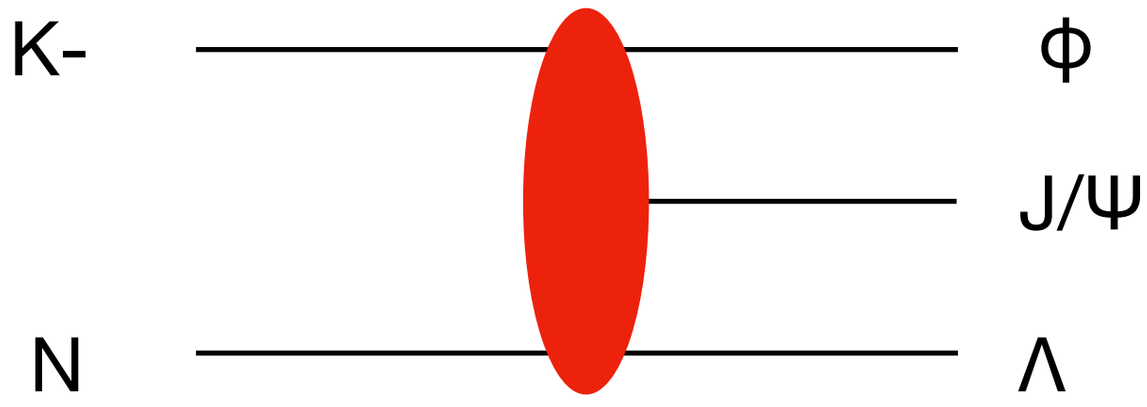
Due to higher energy beam. We can produce many kaons in the final states. The strangeness difference si-sf=Δs<0 may produced inside the nuclei, which can generate stronger attraction via $\underline{K}$N interactions: Multi-kaonic atom. A good testing grond for chiral dynamics and dense medium.

Idea 7



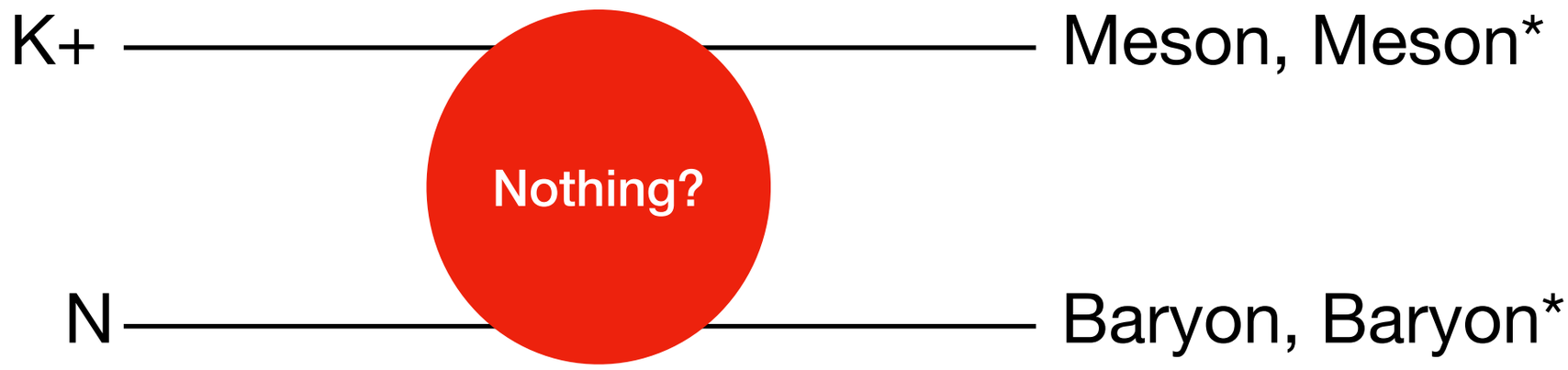
I am not so sure that this idea is crucial but feel interesting: Various heavy and exotic meson exchanges, heavy-light flavor mixed interactions, beyond OZI, difference between Pc and Ps, signal enhancement via interference, etc

Idea 8



Simultaneous Ps & Pc, OZI, exotica, vacuum response depeding on flavors, Higgs vacuum effects,

Idea 9



Low-E chiral dynamics does not provide attraction for S=+ interaction for B-P as well as B-V. Will it give only phase space?: S=+1 desert? Exotics via gluonic Regge interactions?