

Strangeness in nucleon and nuclei: The HyperNIS project

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The properties of hypernuclei are fundamentally interesting as they provide insight into the properties of nuclear binding and bring new insights because they involve strangeness. Considerable interest has arisen recently with new measurements from various laboratories including e.g. the ALICE collaboration at CERN. The production has created an intense debate as to whether or not the production rate can be explained by the coalescence model or by the thermal model with very strong arguments against the coalescence model being presented.

The present proposal will bring considerable relevant information to the discussion. It comes at the right moment and will help clarifying the correct physical understanding of light hypernuclei.

The proposal is to use a ${}^7\text{Li}$ beam to produce strangeness



The hypernucleus decays outside the target thus allowing for the identification of the produced isotopes.

We plan to detect hypernuclei (relativistic, from the beam nucleus fragmentation, see Figs. 18, 19 on page 18) decaying inside the decay volume; its decay product must be detected, identified and the effective mass (and charge) of the decaying object must be calculated.

The experiment is of an inclusive nature as no attention is paid to particles such as kaons.

The motivation is very clearly presented and argued for. The experiment will result in the creation of new fundamental knowledge.

I recommend this project very strongly.

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