Studies of Neutron-Proton Pairing with AIRIS and HELIOS

LBNL-ANL Collaboration

N=Z nuclei, unique systems to study *np* correlations

Large spatial overlap of *n* and *p*

Role of isoscalar (T=0) and isovector (T=1) pairing

Does isoscalar pairing give rise to collective modes?

Two particle transfer reactions provide specific tools to probe the amplitude of pairing collective modes

(p,^{3}He) and (^{3}He,p) *"classical"* probes to firmly elucidate this question.

Also (α,d) and (d,α) ΔT=0.

Inverse kinematics
Solid and **Gas** targets
Light particle and recoil detection

Of particular interest with AIRIS and HELIOS: ^{48}Cr and ^{56}Ni ~1 x10^5 pps

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