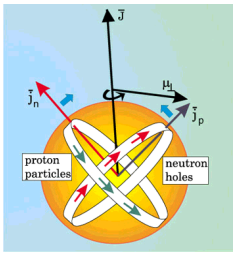
Recent results obtained with GASP

- *A new kind of nuclear collectivity: "magnetic rotation"*



- *"Cold fusion" in the symmetric $^{90}Zr + ^{90}Zr$ reaction*

- *Study of proton rich exotic nuclei: the role of proton-neutron pairing correlations:*

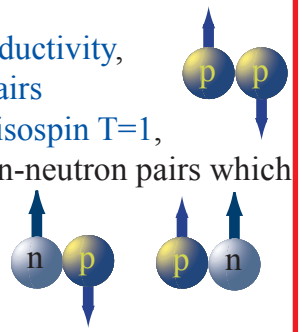
  - First evidence of isospin T=0 and T=1 rotational bands in odd-odd N=Z nuclei of the $1f_{7/2}$ shell
  - Observation of high angular momentum states in light nuclei around ^{32}S
  - N=Z nuclei around mass A~ 80 : the heaviest nucleus (^{88}Ru) where excited states have been established.

- *Elementary modes of excitation in nuclei: double phonon excitations (octupole and quadrupole).*

- *Spectroscopy in superdeformed nuclei.*

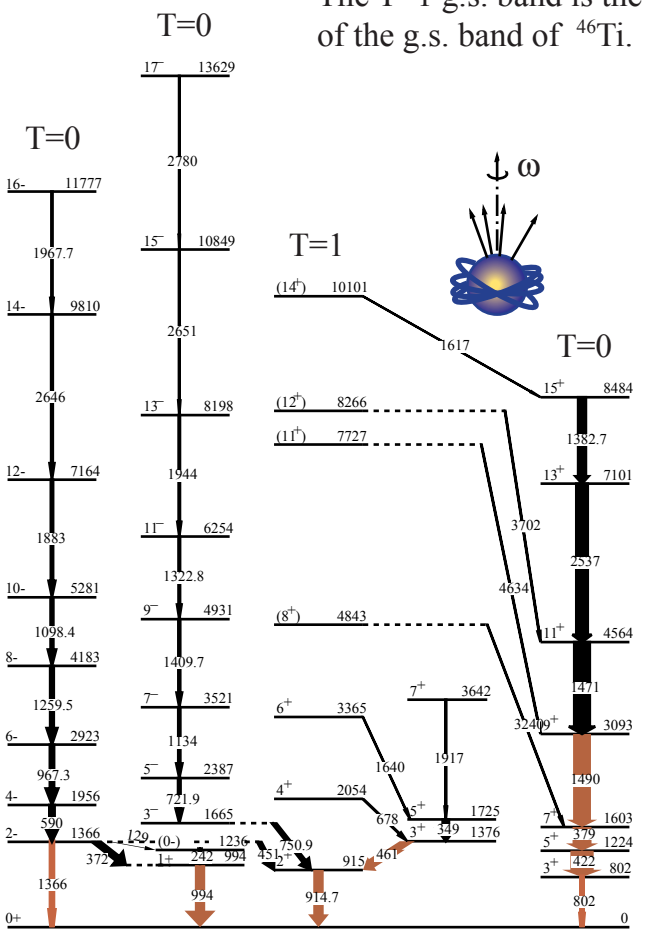
Proton-neutron pairing correlations in the odd-odd N = Z nucleus ^{46}V

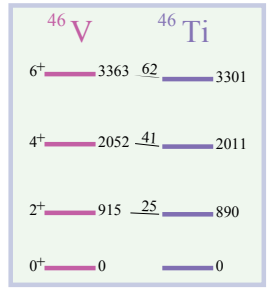
The concept of superconductivity, related to like-nucleon pairs coupled to spin J=0 and isospin T=1, can be extended to proton-neutron pairs which can be also coupled to isospin T=0 in identical orbits



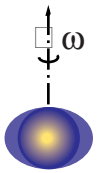
Rotational bands with isospin T=0 of positive and negative parity have been observed, for the first time, up to the band termination with GASP + ISIS.

The T=1 g.s. band is the isobaric analogue of the g.s. band of ^{46}Ti.





Coulomb energy differences can be explained in terms of the evolution of pn and pp pairing correlations in ^{46}V and ^{46}Ti, respectively within the shell model.



known transitions
GASP experiment

S.M.Lenzi et al., PRC 60, (1999)021303