# Yrast sructure of the protonparticle three-neutron-hole nucleus <sup>206</sup>Bi

#### Natalia Cieplicka



Institute of Nuclear Physics PAN, Krakow, Poland



- \* The search for high-lying yrast states in <sup>206</sup>Bi
- Valence particle-hole excitations in <sup>206</sup>Bi comparison with shell model calculations
- States arising from core excitations high-spin isomers





GAMMASPHERE, Argonne National Laboratory, USA

- \* <sup>76</sup>Ge (450MeV) beam on <sup>208</sup>Pb (50mg/cm<sup>2</sup>) target ⇒ deep-inelastic collisions
- \* Pulsed beam ⇒ prompt and delayed gamma-gamma coincidences





# <sup>206</sup>Bi – level scheme









#### Shell model calculations

- <sup>206</sup>Bi: 1 proton and 3 neutron \* holes (with respect to <sup>208</sup>Pb) states from valence particle and holes couplings up to 23+
- Shell model calculations \* describing <sup>206</sup>Bi high-spin structure must include core excitations



version of Kuo-Herling interaction







### Summary

- New identified transitions in <sup>206</sup>Bi deexciting high-lying isomers
- Spin-parity assignment based on: other Bi isotopes,
  - decay pattern and comparison to shell model calculations lower states
  - angular distributions and conversion coefficients high states
- \* Next steps:
  - other Bi isotopes,
  - calculation with core excitation,
  - measurement of g-factor,
  - structure of Bi isotopes as a testing ground for the realistic calculations





#### Thank you for your attention

# Spin alignment



# Nuclei around <sup>76</sup>Ge



#### Wyznaczenie czasu życia izomeru

