



Contribution ID: 146

Type: Oral

## Structural investigation of neutron deficient Pt isotopes: the case of $^{178}\text{Pt}$

*Tuesday, 14 May 2019 15:40 (20 minutes)*

Lifetime measurements with the recoil distance Doppler-shift technique have been performed to determine yrast E2 transition strengths in  $^{178}\text{Pt}$ . The experimental data are related to those on neighboring Pt isotopes, especially recent data on  $^{180}\text{Pt}$ , and compared to calculations within the interacting boson model and a Hartree-Fock Bogoliubov approach. These models predict prolate deformed ground states in Pt isotopes close to neutron midshell consistent with the experimental findings.

Further, evidence was found that the prolate intruder structure observed in neutron deficient Hg isotopes that is minimum in energy in  $^{182}\text{Hg}$  becomes the ground state configuration in  $^{178}\text{Pt}$  and neighboring  $^{180}\text{Pt}$  with nearly identical transition quadrupole moments. The new data on  $^{178}\text{Pt}$  are further discussed in the context of the systematics along the Pt isotopic chain with respect to an asymmetry of the level schemes relative to the neutron midshell that is not expected in collective models. In addition, hints for a sharp shape transition towards a weakly deformed or a quasi-vibrational structure in  $^{174},^{176}\text{Pt}$  will be discussed based on existing data where contradicting model approaches exist.

Supported by the Deutsche Forschungsgemeinschaft (DFG) under Contracts No. FR 3276/1-1 and DE 1516/3-1.

**Primary authors:** FRANSEN, Christoph (Institut für Kernphysik, Universität zu Köln); BRAUNROTH, Thomas (IKP); DEWALD, Alfred (Institut für Kernphysik, Universität zu Köln); HACKSTEIN, Matthias (Institut für Kernphysik, Universität zu Köln); JOLIE, Jan (Institut für Kernphysik, Universität zu Köln); Dr LITZINGER, Julia (University of Cologne, Institute for Nuclear Physics); MAMMES, Franziska (Institut für Kernphysik, Universität zu Köln, Cologne, Germany); WARR, Nigel (Institut für Kernphysik, Universität zu Köln, Cologne, Germany); ZELL, Karl Oskar (Institut für Kernphysik, Universität zu Köln); BARK, Robert (iThemba LABS); BUTHELEZI, Zinhle (iThemba LABS); DINOKO, Tshepo (iThemba LABS, Somerset West, South Africa); FORTSCH, Siegfried (iThemba LABS, Somerset West South Africa); JONES, Pete (iThemba LABS); LAWRIE, Elena (iThemba LABS, Somerset West, South Africa); NEVELING, Retief (iThemba LABS); NEWMAN, Richard (Stellenbosch University, South Africa); SHIRINDA, Obed (iThemba LABS, Somerset West, South Africa); SMIT, Ricky (iThemba LABS, Somerset West, South Africa); SAED-SAMII, Nima (Institut für Kernphysik, Universität zu Köln, Cologne, Germany)

**Presenter:** FRANSEN, Christoph (Institut für Kernphysik, Universität zu Köln)

**Session Classification:** Session VII (Parallel Session)