Contribution ID: **33** Type: **Submitted**

Fast timing studies of collective and single-particle features near 78Ni

Tuesday 26 November 2013 15:40 (20 minutes)

There is a strong interest in the properties of the exotic doubly magic 78Ni. 78Ni itself is at the edge of the experimental reach, thus most of the experiments concentrate on its very close neighbors located North and North-East, as well as South-West, which can be studied in some detail. This presentation provides an overview of the current status of the fast timing experiments IS441 and IS474 recently performed at ISOLDE. They are part of wider research effort on this region using different experimental probes.

In the IS441 we have studied the levels in heavy Ga nuclei populated in the beta decay of Zn. The current analysis is focused on the decays of 80, 81 and 82Zn. This region shows very small collectivity and reveals the single particle features. The experiment IS474 probes the heavy Fe nuclei at the neutron number ˜40 which show a strong increase in the quadrupole collectivity with an increase of the neutron number. The current analysis includes 63,65 and 66Fe.

The Fast Timing probe is particularly effective on the odd-A and odd-odd nuclei where sub-nanosecond lifetimes allow to clarify the nature of the observed excited states. Results will be presented on these nuclei.

Authors: Prof. POVES, Alfredo (University Autonoma, Madrid, Spain); Dr OLAIZOLA, Bruno (University of Complutense, Madrid, Spain); Dr GHITA, Dan Gabriel (NIPNE); Prof. SIMPSON, Gary (University of West Scotland, UK); Prof. MACH, Henryk (NCBJ, Warsaw, Poland); Mrs GHEORGHE, Ioana (NIPNE); Prof. FRAILE, Luis Mario (University of Complutense, Madrid, Spain); Dr MARGINEAN, Nicolae (NIPNE); Mr LICA, Razvan (NIPNE); KOESTER, Ulli (ILL, Grenoble, France); Mr PAZIY, Vadym (University of Complutense, Madrid, Spain)

Presenter: Prof. MACH, Henryk (NCBJ, Warsaw, Poland)

Session Classification: Structure Medium Mass Nuclei