Nuclear structure studies of $^{195}\text{Au}$ and $^{196}\text{Au}^1$ ARMEN
GYURJINYAN, ANTHONY BATTAGLIA, CLARK CASARELLA, ANDREW
NYSTROM, KEVIN SIEGL, KARL SMITH, MALLORY SMITH, SABRINA
STRAUSS, WANPENG TAN, ANI APRAHAMIAN, University of Notre Dame —
The Interacting Boson Model (IBM) theory is widely used to describe nuclear struc-
ture of heavy even-even nuclei. The model was extended to odd-A and odd-odd
nuclei structure studies with supersymmetric transformations. The best quartet of
nuclei to test the supersymmetry transformations is $^{194}\text{Pt}$, $^{195}\text{Pt}$, $^{195}\text{Au}$ and $^{196}\text{Au}$. The
IBM describe the well-known spectra of $^{194}\text{Pt}$, and then the supersymmetric
transformations can predict low-lying levels with negative parity in $^{195}\text{Pt}$, $^{195}\text{Au}$,
$^{196}\text{Au}$. We used $^{195}\text{Pt}(p,n)$, $^{196}\text{Pt}(p,n)$ and $^{196}\text{Pt}(p,2n)$ reactions to produce $^{195}\text{Au}$
and $^{196}\text{Au}$ at the University of Notre Dame Nuclear Science Laboratory. The beam
was 7.75MeV and 12 MeV bunched proton beam respectively. The conversion elec-
tron spectroscopy was carried out using the ICEBall array mini-orange detectors and
two high purity germanium detectors with 109% efficiency for gamma spectroscopy.
The results of experiment will be presented.

$^1$This work was supported by the National Science Foundation under contract num-
ber NSF PHY-1068192.

Armen Gyurjinyan
University of Notre Dame

Date submitted: 30 Jun 2014

Electronic form version 1.4