Abstract Submitted
for the NWS19 Meeting of
The American Physical Society

Spectroscopic studies of neutron-rich tin isotopes ^{129}Sn and ^{133}Sn[1]
FATIMA H. GARCIA, CORINA ANDREOIU, KEVIN ORTNER, KURTIS RAYMOND, KENNETH WHITMORE, Simon Fraser University, GRIFFIN COLLABORATION — The study of nuclear structure requires understanding of the isotopes in the vicinity of the magic numbers. Acting as the noble gases of the chart of nuclides, the magic numbers confer stability to the nuclei with these numbers of nucleons. The isotopes of tin lie at one of these magic numbers, at $Z = 50$, and because of this proton count, tin spans the largest number of total isotopes (40), and the most stable isotopes (10). These radioactive species must be studied at state-of-the-art facilities such as GRIFFIN at TRIUMF. GRIFFIN is a powerful decay spectrometer, used to study species of interest via β and γ spectroscopy. This mechanism was used in order to studying the tin isotopes ^{129}Sn and ^{133}Sn, through the β^- of their indium parents. With 79 neutrons, ^{129}Sn lies three neutrons away from the magic number at $N = 82$, while ^{133}Sn is one neutron above the same magic number. Spectroscopic studies of ^{129}Sn have uncovered twenty new transitions and seven new excited states. A similar analysis of ^{133}Sn is complicated by a high βn branch from the ^{133}In parent, such that the data is buried in the produced ^{132}Sn. Results from the study of ^{129}Sn and ^{133}Sn and potential implications will be discussed.

[1]NSERC

Fatima H. Garcia
Simon Fraser University

Date submitted: 08 Apr 2019 Electronic form version 1.4