

Abstract Submitted
for the DNP15 Meeting of
The American Physical Society

Neutron induced radio-isotopes and background for Ge double beta decay experiments PINGHAN CHU, Los Alamos National Laboratory, MAJORANA COLLABORATION — Environmental neutrons, mostly produced by muons in the cosmic rays, might contribute backgrounds to the search for neutrinoless double beta decays. These neutrons can interact with materials and generate radio-isotopes, which can decay and produce radioactive backgrounds. Some of these neutron-induced isotopes have a signature of a time-delayed coincidence, allowing us to study these infrequent events. For example, such isotopes can decay by beta decay to metastable states and then decay by gamma decay to the ground state. Considering the time-delayed coincidence of these two processes, we can determine candidates for these neutron-induced isotopes in the data and estimate the flux of neutrons in the deep underground environment. In this report, we will list possible neutron-induced isotopes and the methodology to detect them, especially those that can affect the search for neutrinoless double beta decays in ^{76}Ge . This material is based upon work supported by the U.S. Department of Energy, Office of Science, Office of Nuclear Physics, the Particle Astrophysics Program of the National Science Foundation, and the Sanford Underground Research Facility. We acknowledge the support of the U.S. Department of Energy through the LANL/LDRD Program.

Pinghan Chu
Los Alamos National Laboratory

Date submitted: 25 Jun 2015

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