Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Physics searches beyond neutrinoless double-beta decay with LEGEND-1000[1] REYCO HENNING, University of North Carolina at Chapel Hill, LEGEND COLLABORATION — LEGEND-1000 is a proposed experiment to search for the neutrinoless double-beta decay (NDBD) of the ^{76}Ge isotope. It will use enriched high-purity germanium (HPGe) detectors deployed in an active liquid argon shield at a deep underground location. The HPGe detectors are based on the p-type point contact detectors successfully demonstrated in MAJORANA and GERDA. The low noise and low energy thresholds of these detectors, in addition to the low-background design of LEGEND-1000, provides a broad and rich program for searches of new physics other than neutrinoless double-beta decay. Examples include dark matter, axions, exotic nuclear decays, and tests of fundamental symmetries. This talk will review the LEGEND program and describe these other physics opportunities.

[1]This material is based upon work supported by the U.S. NSF, DOE-NP, NERSC and through the LANL LDRD program, the Oak Ridge Leadership Computing Facility; the Russian RFBR, the Canadian NSERC and CFI; the German BMBF, DFG and MPG; the Italian INFN; the Polish NCN and Foundation for Polish Science; and the Swiss SNF; the Sanford Underground Research Facility, and the Laboratori Nazionali del Gran Sasso.

Reyco Henning
University of North Carolina at Chapel Hill

Date submitted: 08 Jan 2021 Electronic form version 1.4