

Abstract

Germanium in liquid Nitrogen Underground Setup (GENIUS) is a proposal for a high mass germanium experiment with a much larger sensitivity for direct WIMP detection relative to existing experiments. It would operate 1 ton of "naked" Ge-detectors in a liquid nitrogen shielding of very low level radioactivity. Already in a first 100 kg of natural Ge version, GENIUS would be able to reach a sensitivity of the order 0.01 counts/d kg and additionally to look for the annual modulation WIMP-signature. Operating 1 t of enriched ^{76}Ge -detectors, GENIUS could search for the neutrino-less double beta decay, probing neutrino masses down to 0.02 eV. © 1998 Elsevier Science B.V. All rights reserved.