CUORE: The Search for Neutrinoless Double Beta Decay – Student Work

ANDREW BIANCO, JOHN SEKERAK, THOMAS GUTIERREZ, Cal Poly - San Luis Obispo, CUORE COLLABORATION — One of the most important problems in physics today is determining the quantum nature of the neutrino. The underground research experiments CUORE and CUORE-0 do this by attempting to detect neutrinoless double beta decay in $^{130}$Te, which would demonstrate the neutrino is its own antiparticle. CUORE is a collaborative American and Italian experiment located at the Gran Sasso National Laboratory in Assergi, Italy. Cal Poly students traveled to Gran Sasso in the summer of 2013 to assist researchers with CUORE assembly, equipment upkeep, cleaning, and experimental shifts for CUORE-0. An overview and progress report for CUORE and CUORE-0 actives will be presented. The work is supported by NSF PHY-0969852.