Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Performance of CHICO2 with GRETINA C.Y. WU, LLNL, D. CLINE, A. HAYES, U. of Rochester, I.Y. LEE, LBNL — CHICO2 is an upgraded CHICO with the improved position resolution matching that of GRETINA. CHICO is a 4π position-sensitive parallel-plate avalanche counter. This improvement is achieved by adding the φ to the existing θ pixelation for the position sensing cathode board. The position determination is not from the pixel directly but from the delay-line readout technique. Additional improvements include the development of a new generation amplifier and a VME based data acquisition system. CHICO2 has been successfully integrated into (Digital)Gammasphere and GRETINA in ANL for the γ-ray spectroscopy study. The position resolution of 0.7° (1σ) in θ and 1.7° in φ is reached for CHICO2. The γ-ray energy resolution of 0.8% is obtained using GRETINA/CHICO2. Three Coulomb excitation experiments were fielded so far; two are the stable beam experiments for studying the shape coexistence in ^{72}Ge and ^{76}Ge with a ^{208}Pb target of 0.5 mg/cm^2 thickness. The third one is to measure the E3 strength in ^{144}Ba ($T_{1/2}$ = 11.5 s), which is the CARIBU beam developed recently at ANL. The description of both hardware and software improvements together with the experimental results will be presented. This work is supported by DOE, DE-AC52-07NA27344 (LLNL) and DE-AC02-05CH11231 (LBNL) as well as the NSF for U. of Rochester.

Ching-Yen Wu
Lawrence Livermore National Laboratory

Date submitted: 30 Jun 2014 Electronic form version 1.4