Abstract Submitted
for the DNP19 Meeting of
The American Physical Society

Fast-timing capabilities of GRIFFIN[1] BRUNO OLAIZOLA, TRIUMF — GRIFFIN is the decay spectroscopy facility at TRIUMF-ISAC in Canada. The core of GRIFFIN is an array of 16 large-volume HPGe clover detectors. One of its main features is the variety of ancillary detectors that can be coupled to the main array. SCEPTAR for β-particle tagging, the 70 liquid scintillators of DESCANT for neutrons or PACES (5 Si(Li) detectors) with high-energy resolution for conversion electrons. A new ancillary array of 8 $LaBr_3$(Ce) detectors for γ-rays and a fast plastic-scintillator called Zero Degree for β-particles is optimized for fast-timing experiments with GRIFFIN. The 51 mm x 51 mm cylindrical $LaBr_3$(Ce) crystals are coupled to Hamamatsu R2083 PMT with an integrated pre-amplifier in the PMT base. Timing resolutions as good as FWHM$\sim$ 300 ps and time-walks $\pm$50 ps have been obtained using a hybrid analogue and digital DAQ system. electronics. A set of BGO shields minimize the Compton background, one of the main limiting factors in lifetime measurement. The $LaBr_3$(Ce) array has been used in a number of experiments to date, measuring lifetimes down to $\tau \sim 20$ ps. The general fast timing capabilities of GRIFFIN will be presented and some of the measured lifetimes in $^{188-200}$Hg and A=144 $-$ 146 Ba, La and Ce discussed.

[1]The GRIFFIN infrastructure has been funded jointly by the Canada Foundation for Innovation, the British Columbia Knowledge Development Fund (BCKDF), the Ontario Ministry of Research and Innovation (ON-MRI), TRIUMF and the University of Guelph. This work was supported by the Natural Sciences and Engineering Research Council of Canada.

Bruno Olaizola
TRIUMF

Date submitted: 28 Jun 2019 Electronic form version 1.4