Abstract Submitted
for the DNP15 Meeting of
The American Physical Society

Computational Model of Fluorine-20 Experiment[1] THOMAS CHUNA, PAUL VOYTAS, ELIZABETH GEORGE, Wittenberg University, OSCAR NAVILIAT-CUNCIC, ALEXANDRA GADE, MAX HUGHES, XUEYING HUYAN, SEAN LIDDICK, KEI MINAMISONO, DIRK WEISSHAAR, Michigan State University, STANLEY PAULAUSKAS, University of Tennessee, GILLES BAN, XAVIER FLECHARD, ETIENNE LIENARD, LPC-Caen — The Conserved Vector Current (CVC) hypothesis of the standard model of the electroweak interaction predicts there is a contribution to the shape of the spectrum in the beta-minus decay of ^{20}F related to a property of the analogous gamma decay of excited ^{20}Ne. To provide a strong test of the CVC hypothesis, a precise measurement of the ^{20}F beta decay spectrum will be taken at the National Superconducting Cyclotron Laboratory. This measurement uses unconventional measurement techniques in that ^{20}F will be implanted directly into a scintillator. As the emitted electrons interact with the detector material, bremsstrahlung interactions occur and the escape of the resultant photons will distort the measured spectrum. Thus, a Monte Carlo simulation has been constructed using EGSnrc radiation transport software. This computational models intended use is to quantify and correct for distortion in the observed beta spectrum due, primarily, to the aforementioned bremsstrahlung. The focus of this presentation is twofold: the analysis of the computational model itself and the results produced by the model.

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Date submitted: 29 Jul 2015 Electronic form version 1.4