

Abstract Submitted  
for the OSF07 Meeting of  
The American Physical Society

**Cockcroft-Walton Base Design for Photomultiplier Tube Experiments**<sup>1</sup> CAITLIN MALONE, The Ohio State University — Economical generation of the high voltage required to run a photomultiplier tube motivates the development of a low-cost voltage multiplier circuit. The Cockcroft-Walton design circuit, in which an oscillating signal drives a diode-capacitor chain, utilizes the parasitic capacitance of the diodes in generating the high voltage. Controlling the oscillating signal with a microcontroller permits the novel strategy of further amplifying the voltage by running the circuit at its natural resonant frequency. Additionally, the microcontroller can provide for a serial interface for controlling and monitoring high voltage, stabilize the high voltage via a feedback mechanism, and enable other features such as an LED pulser for phototube calibration and testing. Careful choices in the microcontroller and circuit design allow for a low-cost, flexible voltage multiplier circuit for photomultiplier tubes.

<sup>1</sup>Supported by National Science Foundation REU Program.

Caitlin Malone  
The Ohio State University

Date submitted: 27 Sep 2007

Electronic form version 1.4