Abstract Submitted
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A data acquisition system based on a novel microcontroller[1] B.A. DEHARAK, T.G. PORTER, N.L.S. MARTIN, University of Kentucky —   We are currently investigating electron impact autoionization in the presence of a pulsed laser field. In these experiments, carried out with a continuous electron beam, it is necessary to record the arrival times of ejected electrons relative to the laser pulse, in order to distinguish between *laser on* and *laser off* events. A simple, versatile data acquisition system (DAQ) based on the Propeller^{TM} microcontroller has been developed. The DAQ has a number of digital and analog I/O lines. Each piece of data received by the DAQ is given a *timestamp* to indicate the time (relative to an external start pulse) that the data was received; the timestamps are precise to within 12.5 ns. Although the Propeller provides for relatively easy, rapid development of complex applications, its use has not heretofore appeared in scientific literature. The Propeller chip contains eight seperate processors (cogs) that can operate independently while sharing common resources – most notably a single system clock which keeps all cogs synchronized. Various attributes of the Propeller will be highlighted in the process of providing an in- depth description of our DAQ system.

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