

Abstract Submitted
for the DNP06 Meeting of
The American Physical Society

Multiplexed Analog Shaped Electronics (MASE): A new approach to the readout of segmented silicon arrays¹ ROMUALDO DE SOUZA, CARL METELKO, SYLVIE HUDAN, Department of Chemistry and IUCF, Indiana University, ANDREW ALEXANDER, JOHN POEHLMAN, Department of Chemistry, Indiana University — A new approach in the signal processing and readout of highly segmented silicon detector arrays is described. The realization of this approach is Multiplexed Shaped Analog Electronics (MASE), an electronic system that allows the effective readout of highly segmented detector arrays when the occupancy in a single event is low. MASE combines the features of good energy resolution with time resolution adequate for random rejection. It employs the tight integration of analog signal conditioning together with digital signal manipulation in discrete component surface mount technology. External digitization of a sparsified analog stream makes MASE cost effective and scalable. It can be used as easily to read out 4096 channels as it can to read out a single silicon detector. Both the design and the performance characteristics of MASE are presented.

¹This work is supported in part by the U.S. Department of Energy under Grant No. DE-FG02-92ER-40714

Romualdo de Souza
Department of Chemistry and IUCF, Indiana University

Date submitted: 05 Jul 2006

Electronic form version 1.4