

Wireless Power and Data Acquisition System for Large Instrumentation Systems

Friday, 16 August 2013 15:35 (25 minutes)

In this talk, I will present the development of a new prototype wireless data acquisition system with the intended application to read-out instrumentation systems having thousands of channels. The data acquisition and control is based on a compliant implementation of 802.11 based hardware and protocols. Our case study is for large detectors containing photomultiplier tubes. We have explored both free-space optical and radio frequency options for wireless power transfer. The front-end circuitry, including a high-voltage power supply is powered wirelessly thus creating an all-wireless detector readout. We have successfully tested the system as a single detector module that is power wirelessly and then sends data wirelessly. I will cover the performance of this all-wireless prototype system and how a large scale implementation of the system might be realized.

APS member ID

61010459

Primary author: Dr SAHOO, Himansu (Argonne National Laboratory)

Co-authors: Dr KREPS, Andrew (Argonne National Laboratory); Dr DRAKE, Gary (Argonne National Laboratory); Dr OBERLING, Michael (Argonne National Laboratory); Dr DE LURGIO, Patrick (Argonne National Laboratory); Prof. HASHEMIAN, Reza (Northern Illinois University); Mr PEARSON, Timothy (Northern Illinois University); Dr DJURCIC, Zelimir (Argonne National Laboratory)

Presenter: Dr SAHOO, Himansu (Argonne National Laboratory)

Session Classification: Accelerators, Detectors, and Computing

Track Classification: Accelerators, Detectors, and Computing