MONTANA STATE UNIVERSITY | College of LETTERS & SCIENCE — Physics Colloquium

Friday, October 16, 2015
4:10 – 5:00 PM
EPS103

Wideband RF Spectrum Sensing & Big Data Search at S2 Corporation and MSU Spectrum Lab

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Abstract:
A solution to two hard problems will be discussed, for which spatial spectral (S2) holographic technologies have progressed to advanced operation. The general S2 solution involves using modulated laser light that interacts with light absorbing crystals, and the result is processing of information over very large bandwidths with high frequency resolution. Recent research and development efforts have propelled S2 technologies to competitive levels when compared to traditional receivers and digital signal processing approaches in some applications. 1) In radio frequency (RF) spectrum sensing, high bandwidth RF is the source from an antenna feed allows continuous wideband results in real time, where coverage of >100 GHz can be realized, and with high dynamic range. In a comparison to traditional receivers, or the wideband all-digital alternatives, the S2 process shows vast advantages in terms of cost, size, weight and power (CSWaP). 2) In addressing large data at high data rates, an S2 processor can continuously process high data feeds for search and data characterization, and with potential massive parallelism is envisioned to outperform conventional resources for some operations. Progress and results on search for data at rates of 100 Gbps will be presented.

Host: Rufus Cone

****** Refreshments served in the EPS second floor atrium at 3:45 ******