Physics & Astronomy Colloquium – Fall 2018

Tuesday, Dec 04th at 3:30 pm in SC 234

Dr. Daniel Dominguez

Sandia National Laboratories

Life of a Sandia Postdoc and work on Micro-Accelerometers

Accelerometers are highly prevalent in consumer electronics, from collision sensor technology in automobiles to motion stabilization of pictures in cellular phone cameras. From a national security standpoint, maintenance of the health, accurate measurement, and testing performance of mission-critical systems is highly desirable and require high fidelity sensing capabilities. Current accelerometer technologies however are limited in size, they are too large to measure response of small components and can impact the natural structural frequencies of the part in question; and are also limited to performance frequencies <10kHz, which lack temporal resolution in short-duration impact tests and are unable to interrogate non-linear structural coupling effects. Our group is developing novel miniature accelerometers with sub-microsecond timescales for characterization of structural dynamics using a Mach-Zehnder interferometer. In this colloquium, I will outline the project goals and methodology to resolve the size and performance limitations of current accelerometers and focus on the particular contributions I've made to the project, as well as discuss my role as a post-doc at Sandia National Labs.

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Refreshments at 3:00 pm in SC 103