

Abstract Submitted  
for the 4CF11 Meeting of  
The American Physical Society

**LEISA: Low-Earth Orbit Ionospheric Spectrum Analyzer** MARIO ORTEGA, ANASTASIA IERIDES, MICHAEL THOMAS, University of New Mexico, STEVE SUDDARTH, COSMIAC — The Configurable Space Microsystems Innovations and Applications Center (COSMIAC) at the University of New Mexico (UNM) has been awarded the Research Experience for Undergraduates (REU) grant by the National Science Foundation (NSF) to design, prototype, and launch a space borne ionospheric spectrum analyzer 1-U (1000cm<sup>3</sup>) CubeSat. The LEISA (Low Earth Orbit Ionospheric Spectrum Analyzer) satellite constellation will measure intracloud lightning via the production of radio wave distortions as a means to measure total electron content (TEC) in the ionosphere. The satellite constellation and various ground stations will digitize, record, and timestamp RF signals emitted by lightning. This allows for clientele to download data easily and rapidly for use in ionospheric modeling and real time GPS correction. The LEISA constellation is currently being developed by various graduate and undergraduate students at UNM and has introduced students to orbital mechanics, plasma physics, and signal propagation. In addition, lightning interaction with the atmosphere, provides students with a solid foundation in research, integration, and design techniques.

Mario Ortega  
University of New Mexico

Date submitted: 16 Sep 2011

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