

Physics Colloquium

Small Satellite Solutions to Problems in Near-Earth Space Science

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Interactions between the co-located “oceans” of ionized and neutral gas that surround the Earth create a host of interesting phenomena that have real-world consequences for satellite and terrestrial communication and navigation systems. These gaseous media and the physics governing their behavior have been studied over the last 50 years using a combination of rocket probes, satellites, radars, and computational modeling. These previous missions have been limited in scope due to the high cost of spaceflight; as a result our knowledge of the near-Earth space environment is based almost entirely on measurements that cannot adequately separate spatial and temporal causes and effects. Recent developments in the micro-satellite arena are beginning to change this by making it feasible to launch suites of satellites that make simultaneous measurements at many locations around the Earth. These developments are poised to revolutionize space science.

In this talk the promise and challenges associated with these new microsatellite ventures are described and set in the context of the current “big problems” in space science. Universities have a significant part to play in these new state-of-the-art endeavors, with clear roles for students. Examples of ongoing research at the University of Texas at Dallas will be used to highlight a number of these areas, and will reveal some research avenues leading to rewarding career opportunities in aerospace industries.

**Thursday, October 15, 3:30pm,
SCI 234**

Refreshments will be served in Sci 103 at 3:00pm