

UNIVERSITY OF TEXAS AT DALLAS - DEPARTMENT OF PHYSICS
PHYSICS COLLOQUIUM

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**New View of the Plasmasphere: Results From
IMAGE EUV**

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In 2000, the extreme ultraviolet (EUV) imager onboard NASA's IMAGE satellite ushered in a new era for the plasmasphere, the relatively dense and cold plasma region at the innermost edge of the Earth's magnetosphere. For decades after its discovery, the plasmasphere was largely believed to be a relatively placid, passive component of the inner magnetosphere-ionosphere system. Starting in 2000, global images obtained by IMAGE EUV began to reveal the critical role of the plasmasphere in the energization and loss of more energetic particle populations such as the ring current and outer radiation belt. Results from IMAGE EUV have also demonstrated that storm-time erosion of the plasmasphere is a significant space weather influence, leading to increased radiation levels and interference with GPS signals used for navigation. Seven years after IMAGE was launched, the new view of the plasmasphere is of a dynamic region intimately connected to the fate of other particle populations.

About the speaker: Dr. Jerry Goldstein got his B.S. at Brooklyn College and Ph.D at Dartmouth College. While being a postdoc at Rice University (2000-2003), he also participated in public outreach and education, working with inner city high school teachers. In 2003, Goldstein moved to the Southwest Research Institute, where he is now a Principal Scientist in the Space Science and Engineering Division. At Southwest he is continuing his research on the inner magnetosphere of Earth, participating in analysis of Cassini data being returned from Saturn's magnetosphere, teaching graduate-level courses as an adjunct professor of U.T. San Antonio, and overseeing the science operations center for the recently-launched TWINS mission. Goldstein has published more than 40 peer-reviewed papers. He was included in Popular Science Magazine's Brilliant Ten (2006) and San Antonio Business Journal's Forty Under 40 (2006). In 2006, Goldstein was awarded the AGU Macelwane medal and granted the status of AGU Fellow.