

UWSP PHYSICS & ASTRONOMY COLLOQUIUM
FRIDAY, SEP. 16, 2011 at 2:00 P.M. in A-106 SCI
Refreshments will be served beginning at 1:45 p.m.

This past summer, UWSP students Paulette Epstein and Micah Broehm participated in Research Experiences for Undergraduates (REU) programs sponsored by the National Science Foundation. Please join us as Paulette and Micah discuss their REU projects and experiences.



Paulette Epstein

**Paulette Epstein: "A Quest for WIMPs:
Cryogenic Dark Matter Search at Texas A&M"**

Dark matter makes up about 23% of the universe but has not been directly detected. The Cryogenic Dark Matter Search (CDMS) is attempting to use low temperature germanium detectors run underground to measure signals from one possible dark matter candidate, Weakly Interacting Massive Particles (WIMPs), while eliminating background events. Texas A&M University is working on improving the current production rate, quality, and reproducibility of fabricated detectors. An automated sputtering system is used to deposit amorphous silicon and high quality tungsten and aluminum thin-films on 3 inch by 1 inch germanium substrates to demonstrate repeatable depositions with desired properties, such as, accurate thickness, desirable critical temperature, and good sensitivity at low energy.



Micah Broehm

**Micah Broehm: "Analysis of Gridded Historical
Climate Data Temperature and Precipitation
Trends in the Northeast United States"**

Gridded historical climate records (GHC) are widely used sources of high spatial resolution (≤ 10 km per grid cell) climate related information. These spatial grids are derived from weather station measurements by using algorithms based on distance and elevation. The PRISM Climate Group at Oregon State University and the Northeast Regional Climate Center at Cornell both compile separate data sets containing the Northeast United States. Here, these two data sets are analyzed using simple linear regression and Mann-Kendall techniques to reveal trends in the data. The results of these computations are searched for consistent warming, cooling, and stable trends within and between these two data sets. While these sets show similar large scale trends, there are significant inconsistencies that should be seriously considered and addressed.

About the speakers:

Micah Broehm is a physics major at UWSP and was an REU student at Clarkson University this past summer. He has an interest in clean energy and many other sustainability topics.

Paulette Epstein is a physics major and a math minor at UWSP in her senior year.