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WEEKLY CALENDAR

January 26, 2009

DEPARTMENT COLLOQUIUM

"Not your Childhood Planetarium: The Evolution to a Digital Universe"

3:40 PM, January 29, 2009
109 Nicholson Hall

Jon Elvert
Planetarium Director,
Louisiana Art & Science Museum

Host: T. Gregory Guzik

• Refreshments served at 3:15 PM in 201 Nicholson Hall •

In the last ten years planetariums have been undergoing a revolution from optical-mechanical projection to immersive full dome digital displays of 3-D astronomical data sets. This talk will summarize new developments in presenting real-time astronomical visualization in the planetarium. Examples of how astronomers at Hawaii's Mauna Kea observatories, as well as Dr. Brent Tully's work on Large Scale Structure in the Universe, are partnering with planetariums in helping them visualize their research, especially with the Sloan galaxy and the 2dF Quasars databases.

SPECIAL SEMINAR

"The Double Chooz Experiment and Beyond"

3:40 PM, **Tuesday**, January 27, 2009
109 Nicholson Hall

Mark Dierckxsens
University of Chicago

Host: William Metcalf

• Refreshments served at 3:15 PM in 201 Nicholson Hall •

The Double Chooz experiment is designed to search for the last unknown neutrino mixing angle θ_{13} using reactor neutrinos. By comparing the event rates in two identical detectors at different distances from the reactor cores, a significant improvement is obtained over the previous experiments. The design, physics potential and status of the experiment which is currently under construction will be discussed. An observation of a non-zero value of θ_{13} opens the path to an ambitious program to study CP violation in the lepton sector and the mass hierarchy of the neutrinos. One of the proposals wants to send a wide band neutrino beam from Fermilab to a large detector at the Homestake mine in South Dakota. The concept behind such an experiment as well as the expected sensitivities will be reviewed.