# WEEKLY CALENDAR
## September 2 - 6, 2013

## DEPARTMENTAL COLLOQUIUM

### "Quantum Spins, Real Rotations and a 1913 Ramanujan Conjecture"

3:30 PM September 5, 2013
109 Nicholson Hall

### A. Ravi Rau
**LSU – Department of Physics & Astronomy**

### Host: Juhan Frank
*• Refreshments served at 3:10 PM in 232 (Library) Nicholson Hall •*

Quantum states are defined as complex variables and their time evolution is given by unitary transformations. For a quantum spin-1/2 or qubit of the field of quantum information, an equivalent picture of the Bloch sphere and real rotations of a unit vector from the origin to a point on the sphere has proved enormously useful. Extension of this nice geometrical view is also possible for a pair of qubits, such pairs being the fundamental objects of interest for entanglement and other quantum correlations that are used in quantum computing, key distribution and teleportation. These will be discussed and a hundred-year old conjecture of number theory used to show that no such correspondence between unitary evolution and real rotations is available for systems of more qubits.

## ANNOUNCEMENT:

The University will be closed on Monday, September 2, 2013 due to the Labor Day Holiday.  Class resumes at 7:30 on Tuesday, September 3, 2013.

## REMINDER:
### Physics Block Party
Friday 6 September at 3:00 PM
2nd-floor halls of Nicholson around the library

## PUBLICATIONS:

1. "Ekpyrotic loop quantum cosmology", **Edward Wilson-Ewing**, Journal of Cosmology and Astroparticle Physics (2013) 015.

2. "*Schrödinger's Killer App — Race to Build the World's First Quantum Computer*", **Jonathan P. Dowling**, Published May 7th 2013 by Taylor & Francis – 453 pages.  http://www.taylorandfrancis.com/books/details/9781439896730/