

PHYSICS COLLOQUIUM (joint with Astronomy),

partially funded by the GSFEI

Chao-Lin Kuo

CalTech

“CMB Beyond the Acoustic Peaks”

Monday, 2/5

4:00 P.M., Ronald Geballe Auditorium, A-102, PAA

Reception at 3:45 P.M. in the lobby

seminars



February 5-9 2007

Abstract:

Together with other cosmological probes, observations of the cosmic microwave background (CMB) radiation have been used to determine standard cosmological parameters with high precision. Much more information is needed, however, to understand the link between the outlandish Lambda dominated-CDM Universe and fundamental physics. In the first part of the talk, I will describe several ongoing CMB experiments targeting the high- l power spectrum and the B-mode polarization anisotropies. These ground- and balloon-based experiments highly compliment the WMAP satellite in survey parameters and science goals. In the second part of the talk, I will describe the CMB detector development efforts at JPL/Caltech, with emphasis on the antenna-coupled transition edge sensors (TES), a technology now reaching maturity. The next generation CMB experiments enabled by this new technology will look even deeper in the B-mode polarization to pursue the imprints of the primordial gravitational background radiation left by Inflation.

Tuesday, 2/6

Particle Theory Seminar Kazumi Tolley, Stanford University

2:30 P.M., NPL “Previous Results and Future Possibilities of KamLAND”

Thursday, 2/8

Physics General Exam Chris Spitzer, UW Physics

11:00 A.M., Rm. C-520, PAT “Cosmology from beyond the Standard Model: MaVaNs and Branes”

Special Physics Colloquium Vadim Ruzic, Stanford University

4:00 P.M., Rm. C-520, PAT “Beyond the Horizons: A quest for New Physics”

Abstract: For the last 40 years, the Standard Model of Particle Physics had great success in describing the experimental data obtained. None the less, questions remain. There are hints that physics beyond the Standard Model exists in the TeV regime. Discovering it, will change our view of the Universe. At 2 TeV center-of-mass energy, the Tevatron is currently the best place to attempt to find this new physics. I will present our search for physics beyond the Standard Model in the large CDF datasets acquired at the Tevatron. I will describe the motivation and choice of an experimental signature, the challenges posed by a hadron collider environment and the interesting results obtained.

Chemistry Colloquium David W. MacMillan, Princeton University

4:00 P.M., Rm. 102, CHB “New Catalysis Concepts”