

UNIVERSITY OF TEXAS AT DALLAS

**OFFICE OF VICE-PRESIDENT FOR RESEARCH AND ECONOMIC DEVELOPMENT
SCHOOL OF NATURAL SCIENCES AND MATHEMATICS**

Sigma Xi

DEPARTMENT OF PHYSICS

PHYSICS COLLOQUIUM

<http://www.utdallas.edu/physics/lectures/info/>

Wednesday, April 5, 2006; 4:00-5:00 PM
Kusch Auditorium, FN 2.102

Discovery of the Y(4260)

Prof. Joseph Izen , Prof. Xinchou Lou, Dr. Shuwei Ye

Department of Physics, The University of Texas at Dallas

A Charmonium meson is a particle composed of a charm quark and an anti-charm quark, just as a hydrogen atom is composed of a proton and an electron. Historically, the observation of two charmonia, the $J/\Psi(1S)$ and the $\Psi(2S)$, was a crucial piece of evidence that confirmed the existence of quarks. Many charmonium excitations have since been identified in the annihilation of electrons and positrons or protons and antiprotons with just enough kinetic energy to produce a charm-anticharm system, and charmonium spectroscopy has helped physicists describe the strong force. After nearly three decades of routine charmonium spectroscopy, a new charmonium-like structure, dubbed the Y(4260) has been reported by the BaBar experiment at the Stanford Linear Accelerator Center. The Y(4260) is not predicted by conventional spectroscopic models, and its properties are exotic. Its discovery has fueled much theoretical speculation about its nature, and Discover magazine included it on its Top 100 Discoveries of 2005. This colloquium will present an introduction to charmonium spectroscopy, an insider's view of the Y(4260) discovery, and some theoretical speculation regarding the nature of the Y(4260).