

# Physics Colloquium

Monday October 18th, 2004. 4:15 PM,  
428 Pupin Hall

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### The b-Quark a Vertex of New Physics

**Abstract:** With signals of physics beyond the Standard Model keenly anticipated in upcoming collider experiments, an obvious question to ask is: how will we determine the nature of this new physics? The answer to this puzzle will come from a wide variety of sources. One of the most promising areas turns out to be flavor physics, particularly that of the b-quark. We will discuss why the study of b-quarks is such a fertile field for our understanding of physics beyond the Standard Model. Past successes as well as the current status of research will be outlined. We will then explore the next likely breakthrough in b-physics - the measurement of oscillations between Bs and anti-Bs mesons. Using work done on the DZero experiment at Fermilab, the challenges of this search will be highlighted. Along the way, we will see illustrations of how these challenges are being met through recent results in other areas of the study of B-hadrons at DZero.

