# Physics Department Seminar

Friday April 20th, 2007

**11:00 am in PHSC 105**

## Is the field of a point charge *really* $r^{-2}$?

**Mr. Brendan Diamond**
**Department of Physics**
**California State University, Chico**

### Abstract:

Every physics student learns and uses Coulomb's law, which is experimentally determined. But what I would like you to consider is why do we think it is exactly $r^{-2}$? What prevents this experimental result from really being $1/r^{-2.00001}$? This seminar will present the historical background to Coulomb's law, the geometric basis for the inverse square relation, and the experiments which test this relation with phenomenal precision. Also, just to keep it interesting, we will check on the mass of the photon. The goal of this talk will be to motivate discussion about the fundamental physical laws and to what extent we trust their predictions.

## Atomic Transistor

**Mr. James Hardeman**
**Department of Physics**
**California State University, Chico**

### Abstract:

Using Bose-Einstein Condensate (BEC) phenomena to create atomic circuit transistor. Quick review of how a metal-oxide-semiconductor field-effect transistor works and how it is analogous to the use of the BEC in a specific formation to create an atomic transistor.