Math Department Seminar

Wednesday, April 4, 2012
1:30pm Room 518

Speaker: **Eric Jacobson**

Title: **Three Isomorphisms for Fundamental Measurement**.

Abstract:

> "The trouble with the idea of measurement is its seeming clarity, its obviousness, its implicit claim to finality in any investigative discourse. Its status in philosophy of science is taken to be utterly primitive; hence the difficulties it embodies . . . tend to escape detection and scrutiny."
> (Henry Margenau, Professor of Physics and Natural History, Yale University. 1959)

This talk will "detect and scrutinize" at least some to the difficulties embodied in the idea of measurement. It takes as a foundation the work of German mathematician, Otto Hölder, who formalized fundamental measurement theory in 1901. Holder showed that if certain conditions hold then there exists an isomorphism between real world quantities and measurement numbers. The conditions are statements about the world and are subject to scientific verification. If they do not hold, then the isomorphism is not demonstrated and the measurement numbers are not valid representations of the measured quantities.

Everyone is Welcome.