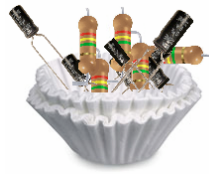


# Physics Department Seminar

Friday May 4th, 2007

11:00 am in PHSC 105

## Electronic Filter Design



**Mr. Joel Amato**  
Department of Physics  
California State University, Chico

### Abstract:

The rise in technology has led to a dependence on electronic systems which communicate through encoded signals. In theory, every signal is ideal. In experiment, signals are riddled with noise. Filters allow desired portions of a signal to pass through while preventing the unwanted portions. Due to complex mathematics filter design is difficult to understand causing engineers to depend on design packages. The problem with design packages is that assumptions are embedded. If the assumptions are not fully understood, they can lead to a design that is not optimal. Taking the time to understand the fundamentals of filter design one can go back and modify the filter to the filter to optimize the outcome.

## Perpetual Motion

**Mr. Matt Smith**  
Department of Physics  
California State University, Chico

### Abstract:

The second law of thermodynamics is an elusive and tricky concept. This talk will outline an argument between some of the great minds of physics and chemistry. In 1866 Maxwell submitted a paper to the Royal Society with an error. His error he asserted was obvious in that it allowed a violation of the 2nd law of thermodynamics. This error had time to seed doubts in both the corrected claim he has made, and the possibility of redefining the second law of thermodynamics.



"That dog will do anything for a biscuit."