

# Department of Mathematical Sciences

## Seminar Announcement

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### **Locally nilpotent derivations: a primer**

Thursday, October 21, 2010

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2:45 – 3:45 PM

Science East – Room 124

A derivation  $D$  on a ring  $R$  is a linear map which satisfies the product rule. A derivation  $D$  is called locally nilpotent if for each  $r$  in  $R$  there exists some  $n$  such that  $D^n(r) = 0$ . Locally nilpotent derivations have become an increasingly popular tool in commutative algebra and algebraic geometry. I will provide a summary of basic concepts and useful facts surrounding locally nilpotent derivations, focusing on the case when  $R$  is a commutative algebra. The talk is aimed at mathematicians. However, students who have studied groups or rings will be welcomed with open arms. I believe locally nilpotent derivations make a nice supplemental topic for students of abstract algebra, as they provide an opportunity to relish fond memories of differential calculus in the midst of a more abstract subject. (Remember when the chain rule was the hardest thing in class? Life was so simple then...)