



SIGMA XI



McGill Montréal



The McGill-Montreal Chapter

Sigma Xi :: The Scientific Research Society ::



Prof. Andrew Kirk

Department of Electrical
and Computer Engineering
McGill University

Where and When

Monday

29 October 2007

6:00 P.M.

McGill University
**Otto Maass Chemistry
Room 10**

*All
welcome*

Metamaterials and Negative Refraction: Is Harry Potter's Invisibility Coat Possible?



From the earliest myths to the most recent science fiction and fantasy, human beings have long been fascinated by the idea of invisibility. In the last few years researchers have begun to show how we might achieve invisibility for real, and have even made some of the very first experimental demonstrations of electromagnetic cloaking. In this talk I will explain some of the ideas that underlie the new science of invisibility, and will describe how optical metamaterials work, how we achieve negative refraction and the implications that it has for image formation and the role that photonic crystals might play in these future cloaking devices. I will discuss the practical limitations of invisibility (for example, would it really be possible for Harry to see through the cloak whilst remaining invisible?) and whether we can expect to buy real cloaks of invisibility any time soon.

A detailed understanding of Maxwell's equations or electromagnetics will not be necessary to understand this talk – just curiosity about visibility, invisibility and light.

Andrew Kirk is an Associate Professor in the Department of Electrical and Computer Engineering and Associate Dean Research in the Faculty of Engineering. He has won the Principal's Prize for Outstanding Teaching at both the Assistant and Associate Professor levels and is a William Dawson Scholar. His research interests include the optics of photonic crystals, negative refraction, nanophotonics, plasmonics and its application in telecommunications and biosensing.

