

Title: Cloaking via change of variables for the Helmholtz equation.

Abstract: A region of space is cloaked for a class of measurements if observers are not only unaware of its contents, but also unaware of the presence of the cloak using such measurements. One approach to cloaking is the change of variables scheme introduced by Greenleaf, Lassas, and Uhlmann for electrical impedance tomography and by Pendry, Schurig, and Smith for the Maxwell equations. They used a *singular* change of variables which blows up a point into the cloaked region. To avoid this singularity, various regularized schemes have been proposed. In this talk I present results related to cloaking via change of variables for the Helmholtz equation using the natural regularized scheme introduced by Kohn, Shen, Vogelius, and Weintin, where the authors used a transformation which blows up a small ball instead of a point into the cloaked region. I will discuss the degree of invisibility for a finite range or the full range of frequencies, and the possibility of achieving perfect cloaking. If time permits, I will discuss some results related to the wave equation.