

**Courant Institute of Mathematical Sciences**  
Mathematics Colloquium  
April 18, 2011

**Speaker: Chris Rorres, University of Pennsylvania**

Title: "The Turn of the Screw: The History and Optimal Design of an Archimedes Screw"

Abstract

The Archimedes Screw is one of the oldest machines still in use today. It is now enjoying renewed popularity because of its proven trouble-free design, its ability to lift wastewater and debris-laden water effectively, and its gentle treatment of aquatic life. Within the last decade it has also found a new application in the generation of electricity by being run backwards. In this presentation I will give a history of this device from Archimedes' time (3rd century BC) to the present day and also discuss my past and proposed research on the design of the Screw that maximizes the amount of water lifted or lowered in each turn of the screw.