DEPARTMENT OF MATHEMATICS
MASTER THESIS DEFENSE

UNIVERSITY OF
CENTRAL
ARKANSAS™

SPEAKER: **Seth Bloomberg, Graduate Student**
Department of Mathematics

Title: **Symmetries of a Harry Dym System**

Date: **Wednesday, July 26, 2017**

Time: **2:00 pm – 3:00 pm**

Place: **MCS 220**

ABSTRACT: Nonlinear partial differential equations, where a single time derivative is expressed in terms of space derivatives, are often referred to as nonlinear evolution equations. These arise naturally in the study of surface tension and the thermalization of certain metals. In particular, the Koreweg-de-Vries (KdV) equation is widely regarded as the prototypical example of a completely-integrable system, as well as possessing the so called Painlev property. Interestingly, the Harry Dym equation, which has been shown to be intimately connected to the KdV equation, does not possess the Painlev property. In this thesis, we seek to expand on the work done by Popowicz in 2003 by classifying the classical symmetries of a general system of nonlinear Harry Dym equations.