

# COLLOQUIUM

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*University of Notre Dame*  
*Department of Mathematics*

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Duke University

Will give a lecture entitled  
**Torus quotients in algebraic analysis**

On  
Thursday, January 17, 2013

at 4:00 PM in Room 127 Hayes-Healy Hall

**Abstract:**

Algebraic analysis, also called the theory of D-modules, is the application of algebraic geometry to the study of systems of linear partial differential equations. Just as algebraic varieties with group actions admit quotients, we provide a quotient construction for linear PDEs with torus actions that is with several important properties in algebraic analysis (the theory of D-modules). As an application, we apply tools from toric geometry to obtain new information about hypergeometric systems of PDEs studied by Gauss, Appell, and Lauricella, among others. In particular, we determine when such "Horn systems" are regular holonomic.

This is joint work with Laura Felicia Matusevich and Uli Walther.