

You are cordially invited to attend the  
*MSU Mathematics Education Colloquium*

Wednesday, March 13, 2013  
3:30 – 5 p.m., 252 Erickson Hall, MSU



Presented by:  
Dr. Sarah Sword

Education Development  
Center, Inc.

### ***Assessing Secondary Teachers' Algebraic Habits of Mind***

In a new NSF-funded collaborative project between Boston University, Education Development Center, Inc., and St. Olaf College, researchers are developing a collection of instruments to assess secondary teachers' mathematical habits of mind (MHoM). We define MHoM to be the specialized ways of approaching mathematical problems and thinking about mathematical concepts that resemble the ways employed by mathematicians.

Our work over the past decade has convinced us of the importance of MHoM for students and for *teachers* of mathematics, particularly at the secondary level. Our hypothesis is that teachers who not only possess strong content knowledge but also the habits of mind used by many mathematicians can teach in ways that result in increased student learning and achievement.

Recognizing the need for a scientific approach to investigate the ways in which MHoM is an indicator of teacher effectiveness, we are conducting a research study centering on the following question:

What are the mathematical habits of mind that secondary teachers use, how do they use them, and how can we measure them?

To investigate this question, we are developing a paper and pencil assessment measuring how teachers' engage MHoM when doing mathematics for themselves and an observation protocol measuring the nature and degree of teachers' use of MHoM in their teaching practice. In this session, I will report on the paper and pencil assessment, sharing examples of items and rubrics.

**Sarah Sword** is a Senior Research Scientist at Education Development Center, Inc. (EDC). She received her Ph.D. in Commutative Algebra at Michigan State University, and followed that with a post-doctoral fellowship in the College of Education at the University of Maryland. She is the Principal Investigator from EDC for the collaborative NSF DRK-12 funded project *Assessing Secondary Teachers' Algebraic Habits of Mind*. At EDC, she was the Principal Investigator for the NSF-funded *Center for the Scholarship of School Mathematics*. She was a curriculum writer for EDC's *CME Project*, an NSF funded high school curriculum with a focus on Mathematical Habits of Mind, and then served as the founding director of EDC's *Mathematics Curriculum Program*. She also works on *Focus on Mathematics*, an NSF Mathematics Science Partnership centered at Boston University.

*The Program in Mathematics Education sponsors this event.*