

CCSU
DEPARTMENT OF MATHEMATICAL SCIENCES
COLLOQUIUM

Friday, November 14
3:00 – 4:00 PM
Maria Sanford, Room 101

**STUDENTS' DEVELOPMENT OF ISOMETRY PROPERTY
KNOWLEDGE IN A DYNAMIC GEOMETRY SOFTWARE
ENVIRONMENT: THE TRANSITION FROM POINTS TO
TRIANGLES FOR REFLECTIONS**

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Abstract: With the current focus on isometries in middle and high school geometry, understanding how students reason about the formal mathematical definitions and properties of isometries has the potential to improve geometry instruction. This talk will examine vignettes from one-on-one teaching experiments with high school students as they learned about reflections in a gridded dynamic geometry environment. The findings of this work indicate that for students to apply the definition of a reflection written in terms of points to geometric shapes, they needed to develop strategies that include coordinated visualization and analytic reasoning along with mental models consistent with the properties of reflections. Additionally, findings include the identification of student-developed “properties-in-action” which are not formal mathematical properties but are consistent with formal properties. These properties in action may serve as an important cognitive step in students’ development of formal property knowledge and generalized strategies.

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