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Brian Allen* (ball1190@messiah.edu), Department of Mathematical Sciences, One College Avenue, Box 3041, Messiah College, Grantham, PA 17027, and **Kristen Bretney** (kbretne1@lion.lmu.edu), Department of Mathematics, Loyola Marymount University, One LMU Drive, Suite 2700, Los Angeles, CA 90245. *Analyzing Hyperspectral Images*.

Our research investigated the underlying geometry and performance of various statistical target detection algorithms for hyperspectral imagery with the goal of understanding and utilizing this information to create new target detection algorithms. We will present the various algorithms that we developed along with their results and explain the underlying mathematics involved in these approaches. Our talk will also include an introduction to the physics of hyperspectral imagery for those not familiar with the subject.

Tests of our algorithms are conducted using imagery and targets freely available at <http://dirsapps.cis.rit.edu/blindtest/>. The imagery was acquired over Cooke City, Montana, a small town near Yellowstone Park, using the HyMap V/NIR/SWIR sensor with 126 spectral bands. (Received August 01, 2009)