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**Speaker:** Emre Sertoz  
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Wednesday, February 7, 2018  
3:00 PM  
258 Hurley Hall

**Title:** Computing periods of hypersurfaces

**Abstract:**

Given a complex manifold  $X$ , the periods of  $X$  are complex numbers which describe the complex structure of  $X$  upon the underlying topological manifold. The periods of a smooth algebraic variety reveal finer geometric data more readily than the defining equations alone. However, periods are typically very hard to compute. In the past 20 years, an algorithm for computing the periods existed only for plane curves. We will describe a different algorithm which can compute the periods of any smooth projective hypersurface. As an application, we will demonstrate how to reliably guess the Picard rank of a quartic K3 surface from its periods computed up to numerical error.