Colloquium

University of Notre Dame
Department of Mathematics

Speaker: Kirsten Wickelgren

Georgia Institute of Technology

Will give a lecture entitled

An arithmetic count of the lines on a cubic surface.

Date: Tuesday, November 27, 2018
Time: 4:00 PM
Location: 229 Hayes-Healy Hall
Departmental Tea: Tea in Room 257 (lounge in Hurley Hall) at 3:30 p.m.

Abstract:

A celebrated 19th century result of Cayley and Salmon is that a smooth cubic surface over the complex numbers contains exactly 27 lines. By contrast, over the real numbers, the number of real lines depends on the surface. A classification was obtained by Segre, but it is a recent observation of Benedetti-Sihol, Finashin–Kharlamov, Horev-Solomon and Okonek–Teleman that a certain signed count of lines is always 3. We extend this count to an arbitrary field k using an Euler number in A1-homotopy theory. The resulting count is valued in the Grothendieck-Witt group of non-degenerate symmetric bilinear forms. (No knowledge of A1-homotopy theory will be assumed in the talk.) This is joint work with Jesse Kass.

Kirsten Wickelgren - Georgia Institute of Technology