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# Algebraic Geometry

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## Hilbert Schemes of Points on Surfaces and their Tautological Bundles

**Abstract:**

Fogarty showed in the 1970s that the Hilbert scheme of  $n$  points on a smooth surface is itself smooth. Interest in these Hilbert schemes has grown since it has been shown they arise in hyperkahler geometry, geometric representation theory, and algebraic combinatorics. In this talk we will explore the geometry of certain tautological bundles on the Hilbert scheme of points. In particular we will show that these tautological bundles are (almost always) stable vector bundles. We will also show that each sufficiently positive vector bundle on a curve  $C$  is the pull back of a tautological bundle from an embedding of  $C$  into the Hilbert scheme of the projective plane.

**Special Note:**

Pre-talk begins at 2pm

Jonathan Conder

**Friday, October 13, 2017**

**2:30 PM**

**AP&M B412**

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