

# 2017 Distinguished Lecture Series

## UCLA Department of Mathematics



## Claire Voisin

College de France

Kähler geometry is a natural extension of complex projective geometry where the tools of Hodge theory are still available and allow to study the link between topology and complex geometry.

The easy examples of projective complex manifolds deforming into non-projective ones are the abelian varieties (complex tori). The subject of the lectures will be hyper-Kähler (or quaternionic) manifolds, which also share this property. Although this geometry may seem extremely restricted, there are many (families of) examples, all built via algebraic geometry.

**Lecture 1** will be an introduction to Kähler versus projective geometry, with emphasis on the Calabi-Yau condition.

**Lecture 2** will be devoted to deformation theory and the period map, with applications to the topology of hyper-Kähler manifolds.

**Lecture 3** will discuss the algebraic geometry side of hyper-Kähler geometry: constructions and general properties, moduli spaces.

**Lecture 1**

**Tuesday, May 9, 2017**  
**3:00 - 3:50 p.m. MS 6627**

**Lecture 2**

**Wednesday, May 10, 2017**  
**3:00 - 3:50 p.m. MS 6627**

**Lecture 3**

**Thursday, May 11, 2017**  
**3:00 - 3:50 p.m. MS 6627**