

# IMSAC Consortium Distinguished Lecture Series



## *Nigel James Hitchin*

Emeritus Savilian Professor  
of Geometry

University of Oxford

2016, Shaw Prize

2002, Polya Prize

2000, Sylvester Medal

1990, Senior Berwick Prize

1981, Whitehead Prize

Friday, December 8, 2023  
at 5:00 pm in Ungar Bldg.  
Room 528-B

## Spinor-valued Higgs bundles

The theory of Higgs bundles has over the last 35 years shed light on many aspects of the geometry of vector bundles on Riemann surfaces. This involves the study of endomorphisms twisted by the canonical bundle. The talk will consider what happens when we twist with a square root of the canonical bundle – this can be considered as solutions of a Dirac equation on the Riemann surface. Some aspects of the standard theory apply directly but others are very different.

Monday, December 11, 2023  
at 5:00 pm in the  
Lakeside Village Auditorium

## ALE metrics and nodal curves

Kronheimer constructed asymptotically locally Euclidean metrics on the resolution of a Kleinian singularity by a hyperkaehler quotient construction. This talk involves an alternative approach using the algebraic geometry of the twistor space and the circle action on the resolution. It leads to the consideration of nodal curves in a linear system on a rational surface, and from that to the differential geometry of the three-dimensional quotient of the ALE space.