

16 Dec 2015, 2pm (Ingram
Lecture Theatre)

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Vikings in shades: navigating by skylight
polarization and its topology

The hypothesis that Vikings navigated at sea using ‘sunstones’ to detect the direction of skylight polarization has excited controversy for almost 50 years. It is possible to understand the necessary crystal optics, and light scattering in daylight, with only a minimum of linear algebra. In this talk I will describe the viking navigation hypothesis, and in doing so reveal the deeper and surprising relationship between polarization in birefringent crystals and in the blue sky, based on a topological understanding of the tensors involved in the propagation and scattering of light.