

LECTURES ON FRONTIERS OF QUANTUM MATTERS

量子物质前沿讲座



清华大学
Tsinghua University

TITLE |

**Sachdev-Ye-Kitaev Models,
Quantum Chaos and Thermal
Transport in Holography**

SPEAKER |

**Richard Davison
(Harvard University)**



TIME |

3:00-4:30 June 12, 13, 15, 16, 2017



VENUE |

Room 322, Science Building
Tsinghua University

主办方：清华大学高等研究院

ABSTRACT

The holographic principle is the idea that a theory of quantum gravity has an alternative description in terms of a non-gravitational theory in a smaller number of dimensions.

This principle has been responsible for many recent advances in high energy and condensed matter physics. I will give a basic introduction to holography, and explain how it is related to the Sachdev-Ye-Kitaev models of interacting fermions, and to the study of quantum chaos. I will also describe how the quantum chaotic behavior of holographic theories is intimately connected to their thermal transport properties.

The four lectures will cover: Introduction to holography and the black hole thermodynamics, Schwarzian action from AdS₂, the Lyapunov exponent from black hole and $D \sim v^2/T$ from holographic computation.