MAP50006: Modern Topic in Theoretical Physics

Semester taught	Hillary Term
Module Coordinator	Andrei Parnachev
Credits	10 ECTS
Content	Basics of Anti-de-Sitter space and black holes, basics of higher dimensional CFTs, two and three-point correlation functions and the elements of holographic renormalisation, finite temperature correlation functions, tree-level Witten diagrams and the Mellin representation, decomposition of Witten diagrams in CFT blocks.
Learning Outcomes	• Determine whether a CFT may have a gravitational description via AdS/CFT. • Define the basics of the AdS/CFT dictionary • Compute two and higher-point correlation functions in a CFT at strong coupling via a simple exercise in gravity. • Compute tree level and some simple loop Witten diagrams
Assessment detail	50% continuously assessment and 50% online examination