15:00 Many-body-localized discrete time crystal with a programmable spin-based quantum simulator

Interacting spin systems in the solid state provide a rich testbed for quantum science and the exploration of many-body physics. I will introduce an experimental platform based upon a register of 27 13C nuclear spins coupled to a single NV centre in diamond and explain how we realise a high degree of control over individual qubits within the system [1,2]. I will then discuss our use of this system as a programmable quantum simulator, leading to the first experimental observation of a many-body-localised discrete time crystal [3,4].