

## Day 3

Steven Abel, Durham University, Institute for Particle Physics Phenomenology

Title: Implementation of complex physical systems on quantum annealers

Abstract:

In this talk I discuss recent developments in the implementation of complex physical systems on quantum annealers. These include systems that allow quantum tunnelling and barrier penetration across specified potentials. The results we find are in accord with those predicted theoretically, showing that a quantum annealer is a genuine quantum system that can be used as a quantum laboratory. More generally I show how our techniques can generally be used to optimise arbitrary potentials in several dimensions. I compare classical with quantum optimisation methods and find a qualitative improvement over classical techniques.