DAVID BULGER (Macquarie)

Global optimisation in the quantum future

Quantum information theory studies how the counter-intuitive laws of quantum physics could be used to process data in ways fundamentally different to today's computers. This talk gives an overview of quantum computation, looking specifically at implications for optimisation. In particular, recent work by the speaker shows how a quantum computational variant of the Newton-Raphson minimisation method can be implemented much more efficiently than on a modern computer, while largely circumventing the method's stability problems.