

The funding was used to support Dr Todd Brun (Institute for Advanced Studies, Princeton) during a visit to the Department of Mathematics at Royal Holloway, University of London, from Sunday 8/9/2002 to Friday 13/9/2002. During this time we worked on several topics:

1. Quantum symbolic dynamics, an idea to represent complex quantum dynamics on a qubit register. This is related to the general problem of simulating quantum dynamics on quantum computers.
2. A generalization of the work of Ekert, Horodecki and others on efficiently measuring nonlinear functions of density operators using quantum circuits.
3. Hypersensitivity to perturbation for iterated quantum maps. We sketched the construction of a quantum circuit that is manifestly hypersensitive.

The visit has led to an ongoing collaboration between Dr Brun and my group at Royal Holloway.

Ruediger Schack, 21 July 2003