

ICTS-IISc Joint Colloquium on **CREATING AND USING ENTANGLEMENT**

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Dr Sanders is especially well known for seminal contributions to theories of quantum-limited measurement, highly nonclassical light, practical quantum cryptography and optical implementations of quantum information tasks. His current research interests include quantum resources & algorithms, optical & atomic implementations of quantum information tasks and protocols, quantum processes in biological systems, and machine learning for quantum control.



December 11, 2014 @ 4 PM
Physics Auditorium, IISc
Bangalore

ABSTRACT: We begin with an excursion through the nature of entanglement, its ubiquity in nature, and the special role of bipartite entanglement for quantum foundations and for quantum information. Then we explore how to create bipartite entanglement in optical and in atomic systems and how to verify entanglement empirically. Finally we cover various measures as well as the monogamy of entanglement.

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