



Makhtedar Sanjay Kumar

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Dr. M. Sanjay Kumar received his M. Sc. (1984) and Ph. D. (1989) in Physics from University of Hyderabad. He had been a post-doctoral fellow at University of Rochester, Institute of Mathematical Sciences, Chennai and Raman Research Institute, Bangalore. He joined the Satyendra Nath Bose National Centre for Basic Sciences as faculty in 1999.

Supervision of Research / Students

Ph.D. Students

1. Soumyakanti Bose (Ongoing); 'Information-theoretic aspects of non-gaussian quantum optical fields'.

Publications in Journals

1. Soumyakanti Bose and **M. Sanjay Kumar**; *Quantitative study of beam-splitter-generated entanglement from input states with multiple nonclassicality-inducing operations*; Physical Review A; 2017; **95**; 012330.

Membership of Committees

Internal Committee

1. Member, Admissions Committee & Admissions Coordinator
2. Member, EVLP (VASP) Committee

Significant research output / development during last one year

General research areas and problems worked on

QUANTUM OPTICS & QUANTUM INFORMATION

Aspects of entangled states generated by a beam-splitter when various nonclassical states of light are input.

Interesting results obtained

Found that entanglement generated by a beam splitter with photon-added squeezed state at the input shows a nonmonotonic dependence on the squeezing parameter.

Have explained the above counter-intuitive phenomenon in terms of competition between the photon addition and squeezing operations as evidenced in the contours of the Q function associated with this state.

Proposed research activities for the coming year

Detailed investigation of Issues relating to use of beam-splitter output entangled states as resources in quantum teleportation.