

Area Seminar

Title	Perfect Entanglement Transport in Quantum Spin Chain System
Date and Time	08/11/2011 16:00:00
Speaker	Dr. Sujit Sarkar
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Area	Theoretical Physics
Venue	Room No. 469
Abstract	<p>We propose a mechanism for perfect entanglement transport in anti-ferromagnetic (AFM) quantum spin chain systems with modulated exchange coupling and also for the modulation of on-site magnetic field. We use the principle of adiabatic quantum pumping process for entanglement transfer in the spin chain systems. We achieve the perfect entanglement transfer over an arbitrarily long distance and a better entanglement transport for longer AFM spin chain system than for the ferromagnetic one. We explain analytically and physically - why the entanglement hops in alternate sites. We find the condition for blocking of entanglement transport even in the perfect pumping situation. Our analytical solution interconnects quantum many body physics and quantum information science.</p>