Area Seminar

Title	The last tango of a vortex-antivortex pair
Date and Time	27/06/2013 16:00:00
Speaker	Kuldeep Suthar PRL, Ahmedabad
Area	Theoretical Physics
Venue	Room No. 469
Abstract	The investigation of vortices in superfluids is a fascinating and active line of research that, by now, has a history spanning over half a century. Starting from the first observations of quantized circulation in liquid helium in the 1950s, the field has undergone tremendous progress. Nowadays, Bose-Einstein condensates (BECs) of dilute atomic gas provide a powerful tool with which vortex research can be pushed into new regimes. We theoretically investigate the effect of a repulsive barrier on the dynamics of vortex dipole. In the presence of barrier, a delicate dance ensues, and the quantum whirlpools eventually annihilate each other followed by emitting a burst of acoustic waves. In this talk, I shall discuss the effect of curvature of the vortex line on the dynamics using matched asymptotic expansion in Frenet-Serret coordinates. Finally I shall discuss the effect of transverse anisotropy of the condensate on the annihilation event.