

Area Seminar

Title Annihilation of vortex dipoles in Bose-Einstein Condensate

Date and Time 16/05/2013 16:00:00

Speaker Shashi Prabhakar

PRL, Ahmedabad

Area Theoretical Physics

Venue Room No. 469

Abstract One of the recent developments in experiments on atomic Bose-Einstein Condensate (BEC) is the creation of vortices and study of their dynamics. We have theoretically explored the annihilation of vortex dipoles, generated by the movement of obstacle through an oblate BEC. We have also examined the energetics of the annihilation events. We have observed that the gray soliton, which results from the vortex dipole annihilation, is lower in energy than the vortex dipole. We have also observed the annihilation events numerically and found that the annihilation occurs only when the vortex dipole overtakes the obstacle and comes closer than the coherence length. Furthermore, we have found that the noise reduces the probability of annihilation events. This may explain the lack of annihilation events in experimental realizations. In this talk, we will discuss about observations obtained from the study on annihilation of vortex dipoles in BEC