

Superbubbles in face-on galaxies: energy budget and velocity dispersion

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Numerous (super)bubbles formed by supernova (SNe) explosions and stellar winds are widely observed in face-on galaxies. Some features of these superbubbles (e.g., energy budget, size, expansion velocity etc.) are determined in observations of various spectral lines (e.g., H-alpha and H1 21 cm) emitted by gas in the shell of a bubble and by stellar population inside it. To interpret observations theoretically for determining the bubble evolution 'standard' scaling relations are normally used. They relations include size, expansion velocity, total energy of SNe explosions and surrounding gas properties. Based of three dimensional simulations of the dynamics of the bubble formed by multiple SNe explosions we found significant deviations from the well-known scaling relations. We re-examine these relations and apply our estimates of energetic and dynamic characteristics of bubbles to those observed in nearby dwarf galaxies.