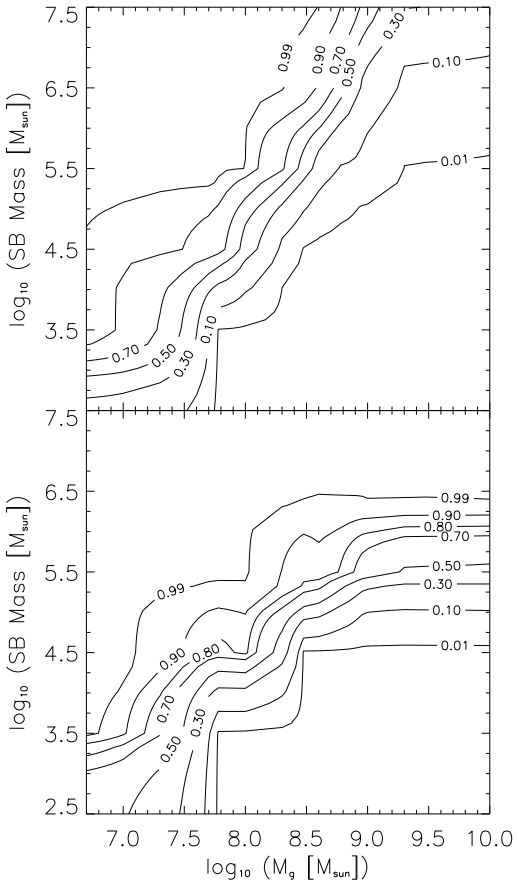

Fig. 2. Mass (ξ_m, top) and metal ejection efficiency (ξ_z, bottom) contours as a function of total mass of the gas and total starburst masses, for adiabatic models (top and bottom panel, respectively).

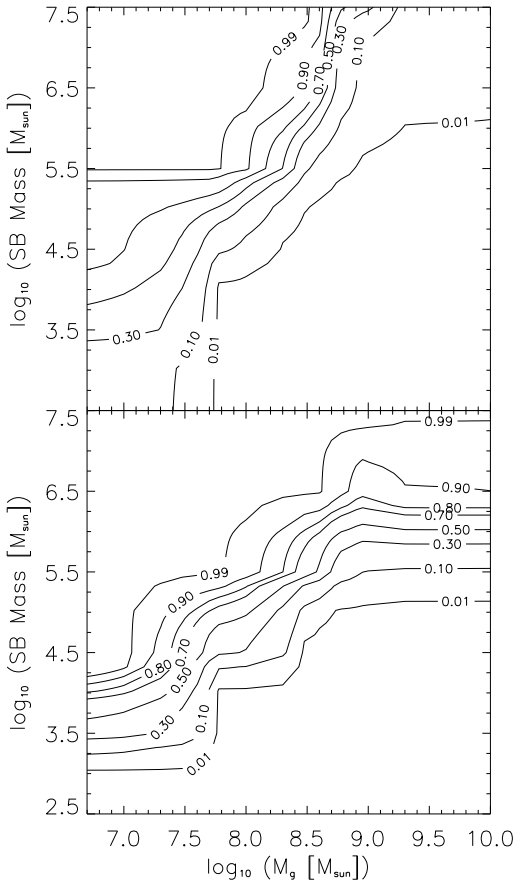

Fig. 3. Same as Figure 2, but for the radiative models.

gas that is gravitationally unbound is of 14%, while 4.7% of the ejected gas gets above $3H$ and returns to the galactic disk. On the other hand, in the adiabatic case 97% of the metallic gas ejected by the nuclear starburst escapes from the galactic gravitational potential. In other words, a galaxy with those parameters would be contaminated only with 5% of the metals produced in the massive SB. For the radiative S8+G6 model, 79% of the metals escape from the galaxy.

The mass ejection efficiencies are presented in Figures 2 and 3, for the adiabatic and the radiative model grids, respectively. In these figures, the abscissa sweeps the galactic models (G1–G10), and the ordinate sweeps the SB models (S1–S11).

Figure 2 shows isocontour maps of the mass ejection efficiency ξ_m (top panel) and the metal ejection efficiency ξ_z (bottom panel) for the adiabatic models as a function of the SB mass and the total gas mass of the galaxy. For the mass ejection efficiency (top panel) we plotted isocontours for $\xi_m = 0.01$, 0.10, 0.3, 0.5, 0.7, 0.9 and 0.99. In this figure, we can see that for the more massive galaxies (in which the gas mass is larger than 10^9 $M_\odot$) the fraction of unbound gas is less than $\sim$0.25, even for a rather large nuclear starburst. However, galaxies with an ISM of mass lower than 10^8 $M_\odot$ will lose virtually all of their gas if they undergo a nuclear starburst that injects more than 10^5 $M_\odot$.

From the $\xi_z = 0.01$, 0.10, 0.3, 0.5, 0.7, 0.8, 0.9 and 0.99 isocontours in the bottom panel one can see that most of the gas ejected from the cluster escapes the galaxy if the starburst mass is $> 10^{6.5}$ $M_\odot$. Also, most of the ejected gas escapes if the galaxy has a total gas mass $< 10^7$ $M_\odot$. On the other hand, for starburst masses $< 10^{4.5}$ $M_\odot$ and galactic gas masses $> 10^8$ $M_\odot$ most of the ejected metals are retained by the galaxy. From the bottom panel of Figure 2 we also see that a starburst with a mass $> 10^{5.5}$ $M_\odot$ will eject more than 50% of its wind into the IGM.