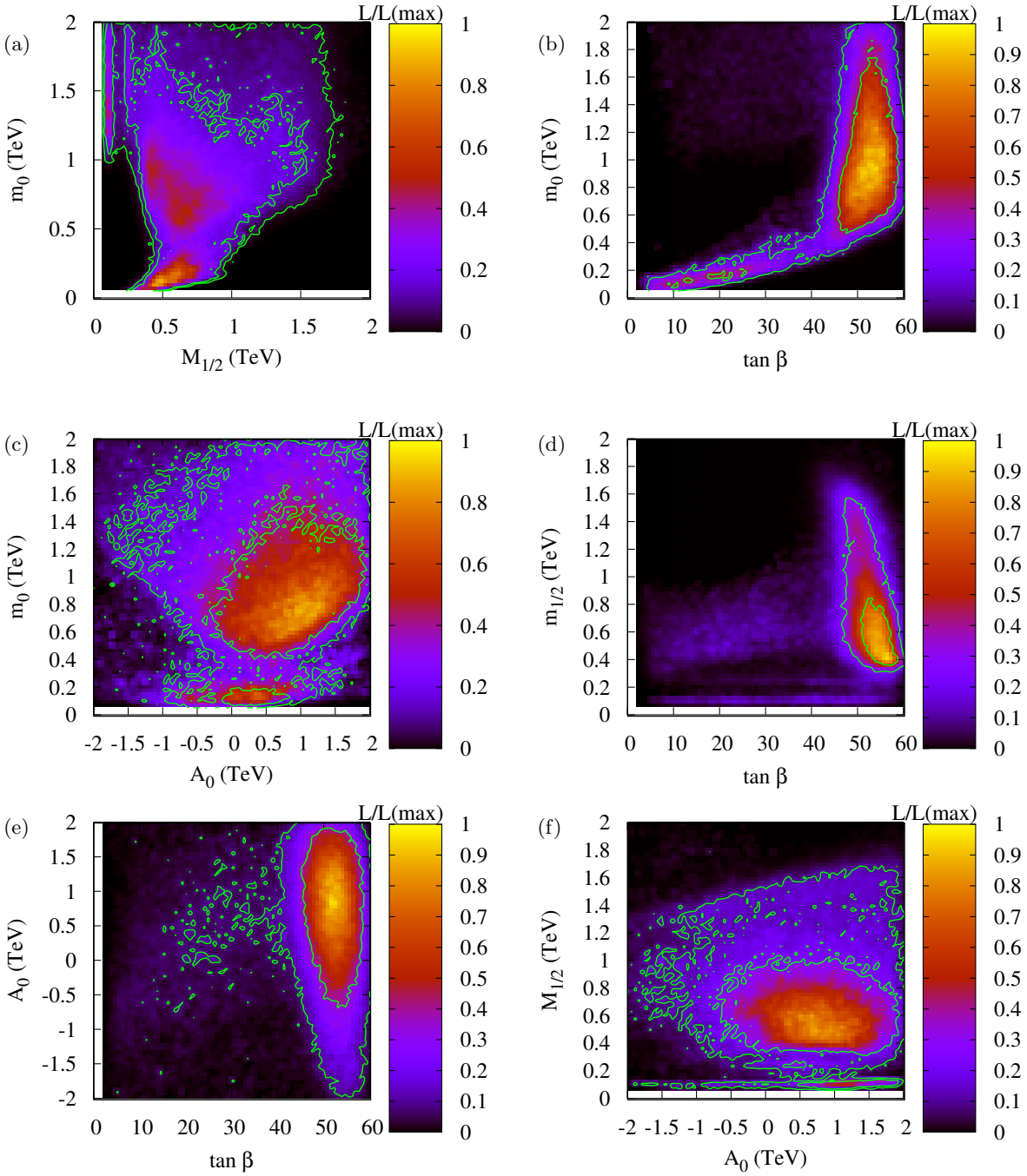

FIG. 2: Likelihood maps of mSUGRA parameter space. The graphs show the likelihood distributions sampled from 7d parameter space and marginalised down to two. The likelihood (relative to the likelihood in the highest bin) is displayed by reference to the bar on the right hand side of each plot. The contours show the 68% and 95% confidence level limits.

relic density in the early universe. However, at the lowest values of m_0 and $M_{1/2}$ values visible on the graph, the bulk region resides, being continuously connected to the co-annihilation tail, as shown in Ref. [7]. The pseudoscalar Higgs (A^0) s-channel annihilation channel occurs at high $\tan\beta = 50 - 60$ and in the intermediate areas of $m_0 = 500 - 1600$ GeV, $M_{1/2} = 250 - 1400$ GeV. In the literature, the most common way to display mSUGRA results is to present them in 2d in the m_0-$M_{1/2}$ plane, where thin strips are observed (see for example Ref. [11]) that are consistent with the WMAP constraint upon $\Omega_{DM}h^2$. Fig. 2a demonstrates (in corroboration with Refs. [43, 44]) that the strips are truly a result of picking a 2d hyper-surface in parameter space: if one performs a full multi-dimensional scan, there is a large region in the m_0-$M_{1/2}$ plane that is consistent with