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On the dynamic formation of accreting intermediate-mass black holes
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(ii) We calculate the exchange interactions of IMBHs with different binary systems or tidal captures of single stars in the disc.

(iii) Using a modified version of the SCENARIO MACHINE (see the online material at http://xray.sai.msu.ru/~mystery/articles/review/) (the binary population synthesis code [5]), we calculate the subsequent evolution of captured systems.

We find (figure 1) that neither mechanism of accreting binary IMBH formation is able to provide sufficient sources to explain the observed population of ULX sources. Even at sub-ULX luminosity, the total number of accreting IMBHs with $L > 10^{36}$ erg s$^{-1}$ is found to be less than 0.01 per galaxy.

Figure 1. Integral distributions of the accretion rate (a) for black holes wandering in a galactic halo and (b) for IMBHs formed in the Galactic disc from primordial metal-free gas: solid curve, systems formed via tidal captures; dotted curve and dashed curve, systems formed via exchange interaction (using fitting formula for the cross-section from [6] and from [7] respectively). The vertical dotted line shows the accretion rate, corresponding to the luminosity $L_{\text{bol}} = 10^{40}$ erg s$^{-1}$, where $L_{\text{bol}} = 0.1 M c^2$. 
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