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Multicomponent photoionization modelling of the HII regions surrounding continuous star-forming regions.(12+3)

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We represent the method of modelling of the HII regions surrounding continuous star-forming regions. The complex “bubble-like” structure of the HII region has been divided into internal and external components. Internal components correspond to the region of free expansion of superwind and the cavity of superwind correspondingly, while the external ones - to a layer of gas, compressed by a superwind shock, and hydrodynamically undisturbed outer part of HII region. Fluxes of this radiation were calculated during modelling using radiative transfer equations which take account of all important processes in the HII region that are causing this transfer. The chemical abundances, mechanical luminosity, Lyc-spectra, mass loss rate were determined in the region of free expansion of the superwind using evolutionary population synthesis models of star-formation region. The evolutionary grid of multicomponent photoionization models of HII regions with central continuous star-forming regions was calculated.

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