ENVELOPE DISTENTION AND MASS LOSS IN W VIR PULSATING VARIABLES

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Abstract. The hydrodynamic calculations of nonlinear self-excited radial pulsations were done for the models of W Vir stars with mass 0.6 $M_\odot$ and luminosities from 794$L_\odot$ to 3981$L_\odot$. The periods of the models are longer than 10 days. The pulsations are shown to be accompanied by periodic shocks that change the density distribution in the pulsating stellar atmosphere. At radii less than 5 R_{ph}, where R_{ph} is the radius of the photosphere, the mean dynamic scale height is nearly five times the static scale height. In this region of the atmosphere the mean radii of outer mass zones do not change perceptably. On the other hand, at radii larger than 5 R_{ph} the scale height is of the order of R_{ph} so that the outermost layers ultimately expand with a velocity exceeding the local escape velocity. The mass flux in the atmosphere increases with decreasing mass to radius ratio and mass loss rate in W Vir type variables is in the range from 2 X $10^{-6}M_\odot \cdot yr^{-1}$ to $10^{-5}M_\odot \cdot yr^{-1}$.

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