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Is it possible to determine whether the EG 50 is a white or strange dwarf by the nature of its cooling?

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Taking into account the neutrino energy losses the time dependences of the luminosities of a white dwarf and four strange dwarfs with masses of $0.5M_{\odot}$ (the mass of white dwarf EG 50 with the surface temperature $2.1 \cdot 10^4 K$) has been determined. It was assumed that these configurations radiate only at the expense of thermal energy reserves. It has been shown that the sources of thermal energy due to nonequilibrium β - processes and the phenomenon of crystallization of the electron-nuclear matter in determining the cooling time of white and strange dwarfs with a mass of $0.5M_{\odot}$ are insignificant . It has been shown that in the considered approximation, the time dependences of the luminosities of the white and strange dwarfs with a mass of $0.5M_{\odot}$ differ noticeable only at surface temperatures $T_R > 7 \cdot 10^4 K$. So it is impossible to determine the whether EG 50 belongs to white or strange dwarfs.

Type of contribution

Talk

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