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Accretion channels of subcritical X-ray pulsars: a study of hydrodynamics and radiation

We present the results of self-consistent radiation-hydrodynamic modeling of accretion channels of subcritical X-ray pulsars. The process of resonant Compton scattering and vacuum polarization is taken into account. It is shown that the radiation in the cyclotron line is determined by the hydrodynamic characteristics of the flow in the accretion channel and the position of the cyclotron line centroid has a positive correlation with the plasma deceleration degree, which corresponds to the observational data. In addition, we investigate the polarization of the X-ray radiation outgoing from the accretion channel.

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