Observational appearances of isolated stellar-mass black hole accretion - theory and observations.

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General properties of accretion onto isolated stellar mass black holes in the Galaxy are discussed. It is shown that such accretion is spherically-symmetric for the majority of cases. An analysis of plasma internal energy growth during the infall is performed. Adiabatic heating of collisionless accretion flow due to magnetic adiabatic invariant conservation is 25% more efficient than in the standard non-magnetized gas case. It is shown that magnetic field line reconnections in discrete current sheets lead to significant nonthermal electron component formation, which leads to a formation of a hard (UV, X-ray, up to gamma), highly variable spectral component in addition to the standard synchrotron optical component first derived by Shvartsman generated by thermal electrons in the magnetic field of the accretion flow. Properties of accretion flow emission variability are discussed.

Observation results of one of the most promising single black hole candidates - gravitational lens MACHO-1999-BLG-22 - in optical band with high temporal resolution are presented and interpreted in the framework of the proposed model.