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Multidimensional dynamics of the brane - dilaton black hole system

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Interactions among black holes and branes could have been relevant in the early stages of the evolution of the Universe. Primordial black holes could have formed out of matter density perturbations, while phase transitions in the cooling Universe may have resulted in an occurrence of extended topological defects. There can exist two types of static configurations within the brane - black hole system. The first one corresponds to the brane which intersects the event horizon, the second one represents unlinked objects. In the case of an extremal black hole, the former does not form. Our research was devoted to examining the dynamical behavior of the brane - dilaton black hole system. The evolution of a brane of a nonzero initial velocity was traced with respect to the position of a black hole. The dynamics was described in multiple dimensions and for various values of parameters of the theoretical setup.

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