

SCALAR COSMOLOGICAL PERTURBATIONS ON THE BRANE

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S u m m a r y

We derive a full system of differential equations describing the evolution of scalar cosmological perturbations on the brane in the general case where the action of the model contains the induced curvature, as well as the cosmological constants in the bulk and on the brane. This system of equations is greatly simplified in the case of ideal pressureless matter. From the brane observer viewpoint, the dynamics of perturbations of the matter on the brane is affected by an additional invisible component – perturbation of the projected Weyl tensor, or dark radiation, having purely geometric nature. The system of equations on the brane serves as boundary conditions for the perturbed bulk equations, which can be treated with the use of the Mukohyama master variable. We consider the case of a spatially closed brane universe and impose the regularity condition for perturbations in the bulk. We demonstrate that the resulting complete system of integro-differential equations is well defined.