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Dark Energy in Five Dimensional Spherically Symmetric Universe with Future Singularity

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Within the limits of the present cosmological observations, an interacting model of holographic dark energy and matter in a five-dimensional spherically symmetric space-time setting has been analyzed within the framework of Brans-Dicke Theory. We obtain a model universe that undergoes super-exponential expansion. It is predicted that the universe is isotropic and will be continuously dark energy dominated. The universe doesn't evolve from an initial singularity but, ultimately ends at the big crunch singularity. The values of the Hubble's parameter, dark energy and matter density parameters are obtained as $H = 68.027$, $\Omega_{de} = 0.741$ and $\Omega_m = 0.203$ respectively which are very close to the values estimated by the latest Planck 2018 result.

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