

Domaine walls low tension

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Usually domaine walls are considered excluded from realistic cosmology because the theoretical expectations for domaine wall tensions and thus also energy densities per area from high energy physics become so huge for cosmological purposes that they tend to spoil completely our cosmological models. However, we have under the attempts to fit the domaine wall tension in our model for dark matter in which the dark matter consists of pearls of a new vacuum surrounded by a domaine wall then obtained the for us surprising low value of the tension $S \sim (\text{MeV})^3$. Such low tension domaine walls could be imagined as sacs around voids between the galaxy clusters and only contributing energy densities of the order of the critical density. In fact such domaine walls could be naturally arranged to with their negative pressure replace the dark energy. If gas inside the large bubbles of the new vacuum get cooled to form H-atoms and if one measures the fine structure constant inside the clouds in the new vacuum it is expected to deviate slightly - of the order $1/10^5$ of the fine structure constant in the usual vacuum -. The so far found very uncertain deviations from constancy of the fine structure constant from place to place could match well. Using the idea of assuming several vacua with the SAME energy densities we once before the Higgs was found predicted it mass with only 10 GeV deviation (the uncertainty in our PREDiction).

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