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A cosmological concordance model with particle creation

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We show that creation of dark-matter particles at a constant rate implies the existence of a vacuum term that decays linearly with the Hubble rate. We discuss the cosmological model that arises in this context and test it against observations of the first acoustic peak in the cosmic microwave background (CMB) anisotropy spectrum, the Hubble diagram for supernovas of type Ia (SNIa), the distance scale of baryonic acoustic oscillations (BAO) and the distribution of large scale structures. We show that a good concordance is obtained, albeit with a higher value of the present matter abundance than in the standard model.