Title:	Astronomical bounds on a cosmological model allowing a general interaction in the dark sector
Authors:	Pan, S. (/jspui/browse?type=author&value=Pan%2C+S.) Mukherjee, A. (/jspui/browse?type=author&value=Mukherjee%2C+A.) Banerjee, N. (/jspui/browse?type=author&value=Banerjee%2C+N.)
Keywords:	Cosmological parameters Cosmology: observations Dark energy Dark matter
Issue Date:	2018
Publisher:	Oxford University Press
Citation:	Monthly Notices of the Royal Astronomical Society, 477(1), pp. 1189-1205
Abstract:	Non-gravitational interaction between two barotropic dark fluids, namely the pressureless dust and the dark energy in a spatially flat Friedmann-Lemaître–Robertson–Walker model, has been discussed. It is shown that for the interactions that are linear in terms the energy densities of the dark components and their first order derivatives, the net energy density is governed by a second-order differential equation with constant coefficients. Taking a generalized interaction, which includes a number of already known interactions as special cases, the dynamics of the universe is described for three types of the dark energy equation of state, namely that of interacting quintessence, interacting vacuum energy density, and interacting phantom. The models have been constrained using the standard cosmological probes, Supernovae Type Ia data from joint light curve analysis and the observational Hubble parameter data. Two geometric tests, the cosmographic studies, and the Om diagnostic have been invoked so as to ascertain the behaviour of the present model vis-a-vis the Λ-cold dark matter model. We further discussed the interacting scenarios taking into account the thermodynamic considerations.
URI:	https://academic.oup.com/mnras/article/477/1/1189/4951612 (https://academic.oup.com/mnras/article/477/1/1189/4951612) http://hdl.handle.net/123456789/2010 (http://hdl.handle.net/123456789/2010)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format	
Need to add pdf.odt (/jspui/bitstream/123456789/2010/1/Need%20to%20add%20pdf.odt)		7.99 kB	OpenDocument Text	View/Open (/jspui/bitstream/12345

Show full item record (/jspui/handle/123456789/2010?mode=full)
(/jspui/handle/123456789/2010/statistics)