**The cosmological Janus model: comparison with observational data** JEAN-PIERRE PETIT, Retired, GILLES DAGOSTINI, None — In 2014 we presented a model based on a system of two coupled field equations to describe two populations of particles, one positive and the other mass of negative mass. The analysis of this system by Newtonian approximation show that the masses of the same signs attract according to Newton's law while the masses of opposite signs repel according to an anti-Newton law. This eliminates the runaway phenomenon. It uses the time-dependent exact solution of this system to build the bolometric magnitude distribution of the red-shift. Comparing the prediction of our model -which requires adjustment with a single parameter- with the data from 740 supernovae highlighting the acceleration of the universe gives an excellent agreement. The comparison is then made with the multi-parametric $\Lambda$ CDM model. (1) J-P. Petit, and G. D'Agostini, Negative mass hypothesis and the nature of dark energy Mod. Phys. Lett.*A* **29**, 1450182 (2014) (2) J.P.Petit et G. D'Agostini : Cosmological bimetric model with interacting positive andnegative masses and two different speeds of light, in agreement with the observed acceleration of the Universe. Mod. Phys. Let. A Vol. 29, No. 34 (2014 nov. 10th) 1450182

Jean-Pierre PETIT
Retired

Electronic form version 1.4