STANDING WAVE ANGULAR HEIGHT OF THE LOCATION OF 17088 SUPERNOVAE FROM AZIMUTH ACCORDING TO OPEN CATALOG FOR SUPERNOVA DATA AS A RESULT OF THE INFLUENCE OF VISIBLE AND DARK MATTER, DARK ENERGY

Peter M. Mazurkin, Dr. Sc., Prof., Volga State University of Technology, Yoshkar-Ola, Russia

Abstract (300 – 500 word limit)

The set of supernovae with redshift of both positive and zero and negative values is considered. Of the 45909 supernovae in the catalog there are 18678 stars with at least one value of the redshift, and according to them the mutual influence of the parameters $\boldsymbol{Alt}$ – altitude (B^0) and $\boldsymbol{Azi}$ – azimuth (B^0) gave an empty band of wave-like form from the stars. $\boldsymbol{Alt} = \boldsymbol{f}(\boldsymbol{Azi})$, which gave 52 wave components, was the most convenient in the analysis. At the same time, visible and dark matter, as well as dark energy, have the strongest influence on supernovae with a redshift on the upper and lower boundaries of the standing wave band. The azimuth varies from 0 to 360^0, and the angular height lies in the range from -45 to $+45^0$. All 52 oscillations are divided into three groups: 1) the period of oscillation is constant, then it is the neutral influence of visible matter (weak influence of dark matter and energy); 2) dark energy expands the space, this group includes oscillations with a growing period at an azimuth from 0 to 360^0; 3) dark matter compresses the visible matter, this should include fluctuations with decreasing period (weak influence of visible matter and dark energy). The universe is accepted as an oscillating integral system in which asymmetric wavelets with variable amplitude and period of oscillations and at the boundaries of the standing wave are most clearly manifested. It is found that the effect of dark energy on the supernovae stretching with a redshift along the azimuth axis has six of the first 52 oscillations. The influence of dark matter is manifested only through finite-dimensional wavelets, and dark matter is inside our Universe. And infinite-dimensional wavelets show that dark energy has an impact outside of our Universe. Was a factor analysis of the nine parameters of the supernova, located on the borders of the standing wave. The coefficient of correlative variation, that is, a measure of the functional relationship between the parameters of the system, is 0.3834. As an influencing variable, the first place is $\boldsymbol{d_L}$ - cuminosity distance (Mpc), the second place is $\boldsymbol{B_\odot}$ - heliocentric velocity (km/s) and the third is $\boldsymbol{m_{max}}$ - maximum acceptable AB magnitude. These nine factors are also dependent indicators: the first place is $\boldsymbol{B_\odot}$- heliocentric velocity (km/s), the second $\boldsymbol{d_L}$ – cuminosity distance (Mpc), and the third $\boldsymbol{z}$ - redschift. The redshift as an indicator takes only the third place. The relationship $\boldsymbol{V_{sky}} = \boldsymbol{f}(\boldsymbol{Alt})$ has the highest adequacy for the correlation coefficient 1.0000. Wave residuals show that there are high levels of adequacy between some supernovae parameters with correlation coefficients greater than 0.99. These remnants also change in waves and therefore show the oscillatory nature of the entire Universe. With correlation coefficient not less than 0.99 influencing variables are: 1) $\boldsymbol{Alt}$; 2) $\boldsymbol{z}$; 3) $\boldsymbol{d_L}$; 4) $\boldsymbol{V_{sky}}$; 5) $\boldsymbol{B_\odot}$. The parameters of supernovae become dependent indicators: 1) $\boldsymbol{V_{sky}}$; 2) $\boldsymbol{d_L}$; 3) $\boldsymbol{z}$; 4) $\boldsymbol{B_\odot}$; 5) $\boldsymbol{Alt}$. The well-known indicator of the redshift was only in third place.

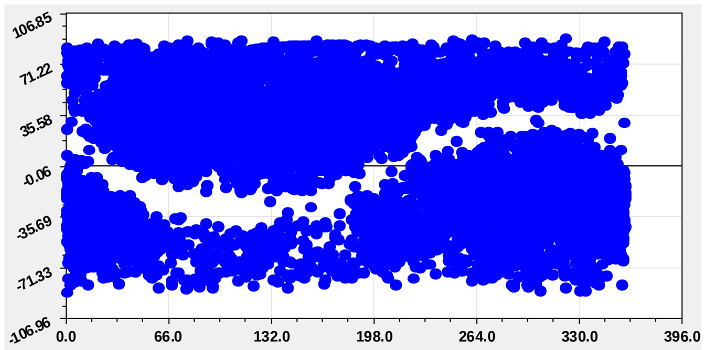

Figure. Distribution of 17087 supernovae with redshift values

Recent Publications (minimum 5)

1. Mazurkin PM (2018) Standing Wave Angular Height of the Location Of 17088 Supernovae from Azimuth according to Open Catalog for Supernova Data as a Result of the Influence of Visible and Dark Matter, Dark Energy. SF J Astrophysics 1:3. (Volume 1, Issue 3, page 1 of 32.)
2. Mazurkin P.M. (2018) Asymmetric wavelet signals of the cosmological redshift. SF J Astrophyzics 1:4. 8 p.
3. Mazurkin P.M. (2018) Oscillatory adaptation of redshift and module of distance in group of 186 supernew MLCS2k2. SF J Astrophyzics 1:4. 19 p.
4. P.M. Mazurkin, Asymmetric Wavelet Signal of Gravitational Waves. Applied Mathematics and Physics, vol. 2, no. 4 (2014): 128-134. doi: 10.12691/amp-2-4-2.
5. P.M. Mazurkin. Identification of wave regularities according to statistical data of parameters of 24 pulsars. 2016. 15 p. Doi 10.18411/d-2016-156.
6. P.M. Mazurkin. Bubbles apparent magnitudes Messier objects. 2016. 6 p. Doi 10.18411/d-2016-157.
7. P.M. Mazurkin. Invariants of the Hilbert Transform for 23-Hilbert Problem, Advances in Sciences and Humanities. Vol. 1, No. 1, 2015, pp. 1-12. doi: 10.11648/j.ash.20150101.11.
8. P.M. Mazurkin. Wavelet Analysis Statistical Data. Advances in Sciences and Humanities. Vol. 1, No. 2, 2015, pp. 30-44. doi: 10.11648/j.ash.20150102.11.

Biography

Doctor of Technical Sciences, Professor, Head of the Chair of Environmental Engineering at the Volga State Technological University. Specialist in modeling quantum states of objects by asymmetric wavelets with variable amplitude and period of oscillations. A total of about 1600 publications, 53 of them are monographs, 26 teaching aids, 296 inventions.

E