Unexpected Redshift of nearby stars

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Unexpected Redshift of nearby stars

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Abstract

We report a list of nearby stars whose Redshift is too much higher than other nearby stars based on an analysis of 58,916 stars. We have used SIMBAD Astronomical Database and obtained this information from 1.4 million records. The data indicate that the Redshift of the almost 200 stars does not completely correlate with distance, and there are some exceptions. The high Redshift of nearby stars questions expansion of space and the Hubble constant.

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1 Introduction

Vesto Slipher (1875-1969) was the first astronomer who measured Redshift. However, Redshift is known by name of the Edwin Hubble (Slipher. V. et al. 1913; Hubble. E. 1929). There are many theories for describing shift in spectral lines of waves in space. Doppler effect (Byrd, G. et al. 1985; Rafikov, R. 2020; Yang, Y. 2019) expansion of space theory (Gradenwitz, P. 2018; Abitbol, M. et al. 2020; Riess, Adam G., et al. 1998), gravitational Redshift (Wojtak, R. et al. 2011; Wolf, P., et al. 2010), and recently quantum Redshift have tried to describe reason for increasing of the wavelength in space.

The expansion of space and recently accelerated expansion of space are accepted with most astronomers and cosmologists. In the expansion space theory, reason for the Redshift of the waves is expansion of space, and space can expand with the speed more than speed of light. In the expansion space theory, regardless of location of the observer, more distance objects have more Redshift and move away faster. Hence, we could expect that objects with equal distance from observer would have almost equal Redshift.

In this paper we have used data of nearby stars to investigate the relationship between the distance and the Redshift. The advantage of choosing nearby stars is using the Parallax method for calculating distance of the stars that is more precise than other methods. The paper has excluded the stars with blueshift.

We have found that there are some exceptions. There are some nearby stars with very high Redshift that expansion of space theory and Hubble constant cannot describe their Redshift. There are 41 stars with z > 1 and almost 200 stars have z > 0.001.

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2 Statistical results

Although SIMBAD Astronomical Database let us write our query to extract data, there is some problem. Max record number in each query is too low and repeating the name of stars in different records is the second problem. Hence, we wrote a script and executed it at different distances. Also, we wrote a program for grouping data and deleting repeated records. Although we can extract stars with the highest Redshift by a simple query, for comparing them with normal stars we need to download too many records. The number of records that we have downloaded for extracting data of 58,916 stars, reached 1.4 million records.

The average distance of the stars is equal to 7.841789 (mas), which is almost 1753.5 light-years. Also, the average Redshift of the 58,916 stars is equal to 0.001629. However, there is some exception. The number of stars with $z > 1$ is equal to 41, and the total number of stars whose Redshift is more than 0.001 is equal to 199. If we exclude the top 199 stars with the highest Redshift, the average Redshift of the remaining stars (58,717) will be decreased to 9.73353E-05.

Table.1 shows a list of 40 nearby stars with the highest Redshift. The first column is the name of the stars, the second column is the Redshift of the stars, and the third column is the distance of the stars from the earth. The sub-columns (3-6) are the distance of the stars in different measurement units. The stars in the table.1 have sorted descending based on their Redshift in column (2). Hence, the Redshift of the star in the first row is the highest Redshift in the 58,916 stars. At the top of the list, although LSPM J1247+0646 is so close to us (distance=19.0575 mas), it has the highest unnormal Redshift and its Redshift is equal to the z=3.63758 (http://simbad.u-strasbg.fr/simbad/sim-id?Ident=LSPM+J1247%2B0646+&submit=submit+id). We can submit the name of stars on this list and check their information one by one. For instance, by submitting the name "KUV 03292+0035" the information is accessible at the address: http://simbad.u-strasbg.fr/simbad/sim-id?Ident=KUV+03292%2B0035&submit=submit+id .

We can check the distance of these stars from the more recent and larger Gaia mission by entering a star name into this web search form: https://gea.esac.esa.int/archive/ , but Gaia cannot see the brightest stars, so the very nearest stars might not be in the Gaia.

To conclude, we cannot describe the high Redshift of the LSPM J1247+0646 and other stars in the table.1 by the theory of the expansion of space because their distances are too low. Also, the Hubble constant is not valid for describing the nature of these objects. Usually, we expect that stars with Redshift more than 1 are in distances more than 1 billion light-years and there is not a positive correlation between the Redshift of the stars and their distance. On the other hand, for describing the high Redshift of the nearby stars by the Doppler effect they must change their redshift along the time, if they are a binary star or change their distance if they are moving away from us. So, we need a complete theory to describe the different losing rate of the energy of the electromagnetic waves in space.

Table.1. Top 40 nearby stars with highest Redshift

Star Name	Redshift	Parallax-Distance		
		mas	parsic	Light Year
LSPM J1247+0646	3.63758	19.0575	52.472779745507	171.061261970353
SDSS J154213.47+034800.4	2.73313	6.8147	146.741602711785	478.377624840418
EGGR 561	2.72013	18.3113	54.6110871429118	178.032144085892
KUV 03292+0035	2.71708	9.0273	110.775093328016	361.126804249332
SDSS J083226.57+370955.4	2.267	8.4573	118.241046196777	385.465810601492
SDSS J083011.35+383940.4	2.255	9.302	107.503762631692	350.462266179316
SDSS J213507.72-071655.6	2.25331	7.9122	126.387098404995	412.021940800283
PHL 1266	2.24238	6.0652	164.875024731254	537.492580623887
SDSS J010442.19-084343.9	2.23809	8.0034	124.946897568533	407.326886073419
SDSS J135205.59+514930.5	2.23562	8.9041	112.307813254568	366.123471209892
SDSS J231629.37-093845.6	2.20085	10.1275	98.7410515921995	321.89582819057
SDSS J222629.42+004254.1	2.19833	6.6263	150.913782955797	491.978932435899
SDSS J090051.91+033149.3	2.18855	8.6037	116.229064239804	378.90674942176
LP 708-404	2.17845	13.9743	71.559935023579	233.285388176868
PB 6723	1.79766	8.3065	120.387648227292	392.463733220972
SDSS J100817.03+434931.7	1.76419	6.8441	146.111249105069	476.322672082524
SDSS J130144.99+615126.0	1.74365	1.3244	755.058894593778	2461.49199637572
SDSS J033218.22-003722.1	1.55488	9.0397	110.623140148456	360.631436883967
SDSS J012532.03+135403.7	1.55168	6.2755	159.349852601386	519.480519480519
SDSS J215759.09+113730.1	1.55068	6.5814	151.943355517063	495.335338985626
LP 612-5	1.54233	20.988	47.6462740613684	155.326853440061
WD 0848+159	1.48972	10.4037	96.1196497399963	313.350058152388
PB 5130	1.32995	8.3035	120.431143493707	392.605527789486
SDSS J000054.38-090807.6	1.09969	6.7805	147.481749133545	480.790502175356
SDSS J091316.85+191345.4	1.098	7.9499	125.787745757808	410.068051170455
SDSS J081457.55+343744.9	1.09393	14.6875	68.0851063829787	221.957446808511
[CDK2003] S-16	1.0838	8.8904	112.480878250697	366.687663097273
SDSS J013358.23-094229.3	1.0781	5.7386	174.258529955041	568.082807653435
SDSS J074204.78+434835.7	1.07725	7.1639	139.588771479222	455.059395022264
SDSS J170927.55+622901.5	1.07541	6.5754	152.08200261581	495.787328527542
SDSS J085443.33+350352.7	1.07476	18.6348	53.6630390452272	174.941507287441
SDSS J031615.10+004716.0	1.07475	9.0697	110.257230117865	359.43857018424
SDSS J111504.50+013203.6	1.07434	8.5223	117.339215939359	382.525843962311
SDSS J075000.58+253812.3	1.07157	14.5728	68.620992534036	223.704435660957
SDSS J165538.51+372247.1	1.07079	6.7888	147.301437662032	480.202686778223
SDSS J215135.01+003140.2	1.06567	12.6226	79.2229810023291	258.266918067593
SDSS J221955.26+135344.2	1.06412	10.1458	98.562952157543	321.31522403359
SDSS J124310.83+613207.9	1.06223	7.5599	132.276881969338	431.222635220043
SDSS J072147.38+322824.1	1.06063	7.0797	141.248922976962	460.471488904897
SDSS J083736.59+542758.4	1.0606	10.9373	91.4302432958774	298.06259314456

Data Availability

The data underlying this article will be shared on reasonable request to the corresponding author.

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