

# Sphere Theory Calculates a Hubble constant in line with average of Wikipedia Summary

## 1.0 Abstract

Sphere Theory is a theory of Universe and Quantum world that everything is spheres made of spheres. Hubble size spheres, Planck Spheres and smaller spheres, multiverse spheres and perhaps larger spheres.

Professor Adam Riess, from John Hopkins University states "A mathematical discrepancy in the expansion rate of the Universe is now "pretty serious", and could point the way to a major discovery in physics." His newly calculated value is 73.24.(1) Sphere Theory calculates the value to be 71.03 **(km/s)/Mpc (2)**

If we look at Evidence for Granulated Space, we that the size of the Hubble Sphere is 13.7659 billion light years(2) If we convert this to a constant Hubble Constant it converts to 71.03 (km/s)/Mpc. This compares to the following Hubble constants calculated from the Wikipedia summary table of 71.027. (km/s)/Mpc.

## 2.0 Calculations

Sphere Theory rudimentary calculates the size of the universe to be 13.7659 billion light years. Although the author does not agree with this to be the age of the universe, he does agree that light would take this many years to travel to the edge of the Hubble Sphere universe. A simple calculation shows that the Hubble constant could be calculated using Sphere Theory.

$$H_0 = \frac{\text{Speed of Light}}{\frac{\text{Age of Universe}}{\text{Million Parsecs}}}$$

$$H_0 = \frac{299792.458 \text{ Km / s}}{\frac{13.7659 \text{ billion years}}{3.2616 \text{ million years}}}$$

$$H_0 = 71.03 \text{ (km/s)/Mpc}$$

The average of the Hubble constant, obtained from the Wikipedia Chart below is 71.027.

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Date published	Hubble constant (km/s)/Mpc	Observer	Citation	Remarks
2017-10-16	70.0+12.0 -8.0	The <a href="#">LIGO Scientific Collaboration</a> and The <a href="#">Virgo Collaboration</a>	<a href="#">[15]</a>	Measurements are independent of a cosmic 'distance ladder'. This study estimates the luminosity distance out to cosmological redshifts.
2016-11-22	71.9+2.4 -3.0	<a href="#">Hubble Space Telescope</a>	<a href="#">[16]</a>	Uses time delays between multiple images of distant galaxies to measure the Hubble constant. <a href="#">lensing</a> .
2016-07-13	67.6+0.7 -0.6	<a href="#">SDSS-III Baryon Oscillation Spectroscopic Survey</a>	<a href="#">[17]</a>	<a href="#">Baryon acoustic oscillations</a>
2016-05-17	73.24±1.74	<a href="#">Hubble Space Telescope</a>	<a href="#">[18]</a>	<a href="#">Type Ia supernova</a> , the uncertainty is expected to decrease with upcoming <a href="#">Gaia</a> measurements and other improvements.
2015-02	67.74±0.46	<a href="#">Planck Mission</a>	<a href="#">[19][20]</a>	Results from an analysis of <i>Planck's</i> full mission data. The mission was launched in <a href="#">Ferrara</a> , Italy. A full set of papers detailing the mission's findings is available.
2013-10-01	74.4±3.0	Cosmicflows-2	<a href="#">[21]</a>	Comparing redshift to other distance methods, including <a href="#">supernovae</a> .
2013-03-21	67.80±0.77	<a href="#">Planck Mission</a>	<a href="#">[22][23][24][25][26]</a>	The <a href="#">ESA Planck Surveyor</a> was launched in May 2013. This report provides a more detailed investigation of cosmic microwave background anisotropies using <a href="#">HEMT radiometers</a> and <a href="#">bolometer</a> technology. On 21 March 2013, the European-led research team released the mission's data including a new CMB all-sky map.
2012-12-20	69.32±0.80	<a href="#">WMAP</a> (9-years)	<a href="#">[27]</a>	
2010	70.4+1.3 -1.4	WMAP (7-years), combined with other measurements.	<a href="#">[28]</a>	These values arise from fitting a combination of WMAP data with other measurements to the $\Lambda$ CDM model. If the data are fit with more measurements, the uncertainty is typically around 67±4 (km/s)/Mpc although this is still uncertain.
2010	71.0±2.5	WMAP only (7-years).	<a href="#">[28]</a>	
2009-02	70.1±1.3	WMAP (5-years). combined with other measurements.	<a href="#">[30]</a>	
2009-02	71.9+2.6 -2.7	WMAP only (5-years)	<a href="#">[30]</a>	
2007	70.4+1.5 -1.6	WMAP (3-years)	<a href="#">[31]</a>	
2006-08	77.6+14.9 -12.5	<a href="#">Chandra X-ray Observatory</a>	<a href="#">[32]</a>	

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Date published	Hubble constant (km/s)/Mpc	Observer	Citation	Remarks
2001-05	72±8	<a href="#">Hubble Space Telescope</a>	<sup>[33]</sup>	This project established the most precise optical observations of the Sunyaev-Zel'dovich effect

(3)

Average 71.027

Perhaps Sphere Theory will help point the way to a major discovery in physics.

### 4) Discussion

The Sphere theory yields a Hubble constant of 71.03 Km/s/Mparsec. It is difficult to speculate which one of these values for the Hubble constant is most accurate. If we take the Hubble value obtained in 2016 of  $73 \pm 1.75$  and compare it to the  $67.8 \pm 0.77$  value from the 2013 Planck Mission we see an imprecise prediction that may mean an adjustment to the models. The Sphere Theory model is somewhere between these two models and has been that way for a while. Although the Value of 71.03 Km/s/Mparsec obtained from Sphere Theory, and 71.027 Km/s/Mparsec obtained from the Wikipedia chart are very close, it does not mean any of the values are correct. But, since the Wikipedia summarized values are so disparate, it could be that the actual theory may be somewhere between the current model measurements. The author believes that there may be some minor adjustments to Sphere Theory, on the order of the mass ratio of the Proton to Neutron to the size of the Hubble Sphere Universe.

### 5) References

- 1) <http://www.bbc.com/news/science-environment-42630399>
- 2) <http://vixra.org/pdf/1403.0502v6.pdf>
- 3) <https://en.wikipedia.org/wiki/Universe>