

Hubble's Law as a Fundamental Invariant: 10 Significant and Excellent Applications

Gh. Saleh

Saleh Research Centre, Netherlands

Hubble's Law stands as one of the most important relations in modern cosmology, linking the distance of celestial objects to their speed. First proposed in 1929 by Edwin Hubble — drawing on his own observations as well as data from other astronomers, notably Vesto Slipher — it went on to become one of the main foundation for studying the structure and dynamics of the universe.

The law is usually written as $V = HD$, where V is speed, H is the Hubble constant, and D is distance. In conventional cosmology, this relation describes the expansion of the universe and the way a galaxy's distance relates to how fast it recedes.

The studies and papers of Saleh Research Group, however, put forward further interpretations and applications of Hubble's Law. On this view, the speed given by Hubble's Law can be understood as a tangential speed, connected to the rotational motion of celestial objects and of the universe as a whole.

What follows are 10 applications of Hubble's Law developed from this perspective: calculating the speed of celestial objects, determining the Hubble constant, examining the universe's rotational motion, calculating its rotational speed, calculating the speed of galaxies, examining velocities that exceed the speed of light on a cosmic scale, examining the expansion of the universe, deriving equations of motion and energy, and, finally, deriving a structural model and shape for the universe.

1. Calculation of the tangential speed of celestial objects in the Universe

According to the article “[New Discoveries about Hubble's Law](#),” it has been established that the speed of celestial objects derived from Hubble's Law is, contrary to previous astronomical understanding, actually their tangential speed and not their linear one.

2. Definition and calculation of the universal constant

Edwin Hubble, in 1929, combining his observations with data from other astronomers, especially Vesto Slipher, discovered a relationship between galaxy distances and their speed, now known as Hubble's Law. This relationship led to the calculation of Hubble's Constant (H).

3. Proof of the rotational motion in the Universe

The article “[New Discoveries about Hubble's Law](#)” from the Saleh Theory Group proves that Hubble's Law actually indicates the rotational speed of celestial objects. This, in turn, demonstrates the rotation of celestial objects and, in a way, proves the existence of rotation in the Universe.



4. Calculation of the rotational speed of the Universe

Based on the aforementioned article by the Saleh Theory Group, it has been proven that Hubble's Constant is actually the angular speed of celestial objects. Since the Universe is homogeneous, Hubble's Law also indicates the rotational or angular speed of the Universe.

5. Calculation of speed of galaxies in the Universe

The primary use and application of Hubble's Law ($V=HD$) is to determine the speed of celestial objects, which also applies to galaxies.

6. Proof of the breaking of the speed of light using Hubble's Law

Given Hubble's Law ($V=HD$) and the observable Universe's radius of approximately 5×10^{26} m, a simple calculation shows that at the edges, and even elsewhere, the speed of celestial objects exceeds the speed of light.

7. Proof of the existence of expansion in the Universe

Hubble's Law states $V=HD$, which indicates that as “D” (distance) increases, “V” (speed) increases. This, in a way, demonstrates the expansion of the Universe.

8. Derivation of the equations of motion for celestial objects in the Universe

Based on Hubble's Constant, which, according to the Saleh Group's articles, represents the angular speed of the Universe, and the initial energy of the Universe obtained using the Monte Carlo method, general equations for the motion of celestial objects at different moments can be derived. These equations are found in the Saleh Theory Group's article “[New Calculation of the Time of the Universe from Beginning to End.](#)”

9. Derivation of the energy equations for celestial objects in the Universe

Similar to point 8, where the velocity equations for each celestial objects can be derived, here too, using the equations of motion, the energy equations of the Universe can be obtained at any given moment.

10. Derivation of the structural model and shape of the Universe

According to the Saleh Theory Group's article “[Calculating the Angular Velocity of the Universe and the Photon, and the Tangential Velocity of the Universe and the Photon Part B,](#)” the shape and structure of the Universe can be derived using the equations of motion and Hubble's Constant.

Conclusion

Hubble's Law remains one of the fundamental relations for studying the universe at large scales, and since it was first put forward it has played a significant role in examining the distance, speed, and evolution of celestial objects. The relationship between distance and speed — $V = HD$ — makes it possible to probe the behaviour of galaxies and the dynamical structure of the universe.



This paper set out 10 applications of Hubble's Law which, alongside its familiar uses, include reading the Hubble speed as a tangential speed, together with the other cases discussed above.

On the view put forward by the Saleh Research Group, Hubble's Law need not be confined to a simple relation between distance and speed; it can instead be treated as one of the fundamental relations for studying the motion, energy, structure, and dynamics of the universe.

Taken together, these applications offer a foundation for further theoretical and mathematical work on the motion and structure of the universe. Testing these models accurately, and weighing their predictions against observational data, will be important for assessing how much validity this interpretation of Hubble's Law ultimately holds.

References:

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