

QSSC model's next step is the STOE

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Abstract

The Quasi-Steady State Cosmology (QSSC) posits a continuous creation at the center of galaxies. The Scalar Theory of Everything (STOE) posits the components of the universe have a creation and an end. A Sink at the center of elliptical galaxies is added to the Source of the QSSC at the center of Spiral galaxies. This allows the explanation of many more anomalous cosmological observations and allows correspondence with quantum mechanics.

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1 Introduction

The major difference between the standard Big Bang cosmology (BB) model and the quasi-steady state cosmology (QSSC) model is that matter creation of a “C-field” occurs continuously in the center of galaxies (Sources) with energy conservation. The resulting ejection increases the volume of the universe such that the Perfect Cosmological Principle (the universe looks the same in density and time) applies. The QSSC is a Machian theory. The basic observations that are currently interpreted as supporting the BB can be interpreted as supporting the QSSC, also (3, p. 321). The QSSC suggests no initial singularity. The creation field controls the expansion of the universe such that the density remains approximately constant with periods of expansion and contractions. The physical control mechanism is unexplained. Although debated, the QSSC has a better model than BB for QSOs [data from Arp (1)], for the large scale structure of the universe, and for the abundance of light elements.

Both the BB and QSSC have many unexplained cosmological anomalies and neither suggests correspondence with the world of Quantum Mechanics (the double slit experiment).

This paper suggests the Scalar Theory of Everything (STOE) expands on the QSSC by positing the existence and location of Sinks and by positing the components of the universe of the continuous creation events (5).

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2 Correspondences

The physics observations of life include a beginning and an end. The STOE suggests all entities in the universe have a beginning and an end in the universe. So too, the components of the universe (herein “components”) have Sources at the center of spiral galaxies and Sinks at the center of elliptical galaxies.

The components are hods that are discrete surfaces and plenum that is continuous. Hods act on the plenum to produce waves and the plenum acts on the surface of hods to move and orient them. The plenum density ρ obeys the heat equation (5, chs. 5).

The ρ_p at a point in the universe is the sum of the effects of all galaxies and all matter in the universe:

$$\begin{aligned} \rho_p &= K_\epsilon \sum_{i=1}^{N_{\text{source}}} \frac{\epsilon_i}{r_i} - K_\eta \sum_{j=1}^{N_{\text{sink}}} \frac{\eta_j}{r_j} \\ &\quad - K_{\text{hods}} \sum_{k=1}^{N_{\text{hods}}} \frac{K_r}{r_k} \cos\left(\frac{2\pi r_k}{\lambda_T} - \pi\right) \exp^{-j(\omega t_k)} \\ &\geq 0 \quad , \end{aligned} \tag{1}$$

where the K 's are constants, the constants include the diffusivity constant, the wave parameters are λ , w , and t_k , the r 's are the distances from their respective points to the point being calculated, the ϵ are the Source strength, and the η are the Sink strength. The r 's are distance and time dependent.

The N_{source} produce a $\rho_p \geq 0$ throughout the universe. Therefore, as $r_j \rightarrow 0$ and $r_k \rightarrow 0$ the $\rho_p \rightarrow 0$. What happens at the Sources is unmodeled.

The “*Universal Equation*” is the divergence of ρ_p proportional to a force \vec{F}_s (dyne) that acts on matter and directs a hod:

$$\vec{F}_s = K_G \sum_{l=1}^{N_{\text{hods}l}} m_{\text{hod}} (\vec{n}_l \cdot \vec{\nabla} \rho_{pl}) \vec{n}_l, \tag{2}$$

where m_{hod} is the surface area of a hod that is the same for all hods and the \vec{n} 's are unit vectors normal to the hod surface. Therefore, the STOE is Machian like the QSSC.

The STOE suggests the Sources emit the components which expand outward from the center of spiral galaxies (5, chs. 2–5). The nucleosynthesis of hods to hydrogen happens as QSSC suggests (3, chs. 9–10). Shells of shocked hydrogen flow outward from the center to either be ejected or to form suns as depicted in Fig. 1. The suns form other elements as QSSC suggests (3, chs. 9–10).

Some components combine to form hydrogen then stars that are gravitationally attracted by matter and flow back toward the center. The star caused matter becomes denser relative to its surface presented to the plenum.

Thus, the ρ as a function of spiral galactic radius r varies as $1/r$. Combined with the action on the surface of the hods and the model of the nucleus of

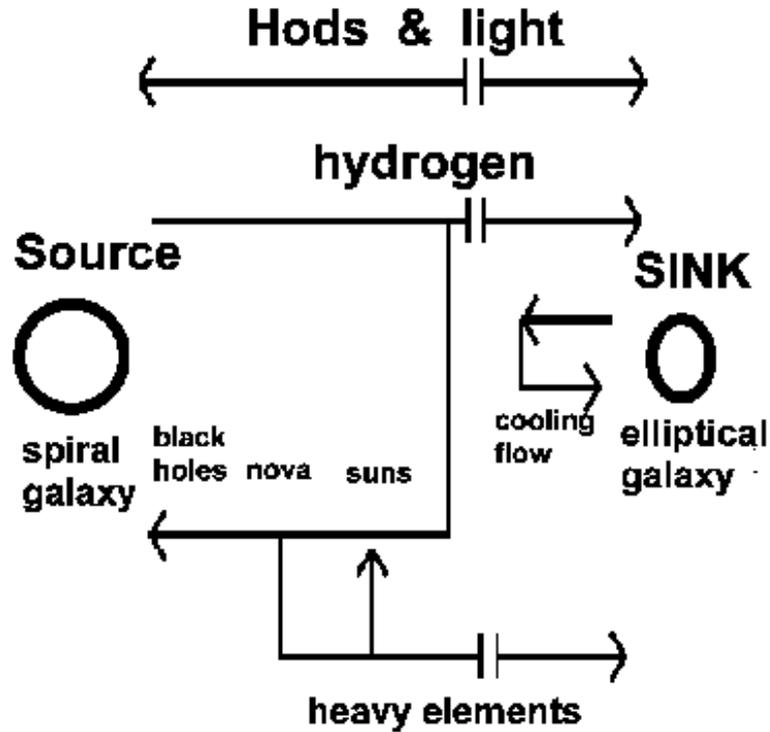


Figure 1: The structure of a “cell”. Galaxy clusters and superclusters are made of cells.

atoms being spherical and their size (volume dependence) yields the observed metallicity dependence on r (2). Other galaxy relations (a) of rotation velocity to radius (5, ch. 8), (b) of rotation curves without dark matter (5, ch. 10), and (c) of central massive objects with other galaxy parameters (5, ch. 11) are also explained.

As matter moves inward, it becomes denser until it erupts into a supernova that blasts some heavier matter out of the spiral galaxy along with light and hydrogen. The matter moving inward eventually combines to black holes that continue to the volume around the Source. The very high plenum density around the Source crushes the black holes to have their components ejected as radiation or elementary particles.

The Sinks are located in the center of elliptical galaxies as depicted in Fig. 1.

The components that flow from the spiral galaxies move toward gravitational centers of elliptical galaxies. The origin of the microwave background (MB) (3, p. 201–207) is explained as a negative feedback process that controls the average temperature of the universe to hunt 2.718 K (5, chs. 5). Therefore, the blackbody nature of the MB is more easily explained. The STOE also has the MB oscillating over long periods with the rising temperature periods suggesting the universe expansion that current models call dark energy. The many differences between spiral galaxies and elliptical galaxies are explained by the different processes the STOE model suggests (2, ch. 4).

The redshift-distance relation for galaxies uses the Universal Equation to calculate the ρ at each point along the path of light from galaxies (5, ch. 6). The varying ρ causes the photons to lose or gain energy. The Universal Equation suggests a different kind of effect (sign difference) between spiral galaxies and elliptical galaxies that derives from their different characteristics. Based on a correlation with Cepheid distances, a linear relation with the energy change of photons derives a linear form of the Hubble Law. The constant in this linear form accounts for the nearby galaxy's blueshift. Further, the light passing a Sink has a greater energy loss (redshift) than light passing a Source. This causes the observed discrete redshift phenomenon (3, p. 328–336).

Further still, the masses (K_{hods} term) have an effect on the ρ with the same sign as Sinks. The redshift equation was applied to the Pioneer Anomaly and the masses in the Solar System to explain all 12 characteristics rather than just one of traditional physics (5, ch. 7).

The QSSC problem of the origin of angular momentum (3, ch. 23) is solved by the STOE as $\vec{\nabla}\rho$ caused by neighbors. For example, the STOE suggests asymmetric rotation curves are caused by the plenum from neighbor galaxies (5, chs. 10).

The STOE suggests the magnetic fields are the slope of the plenum (7; 8; 9; 10). The observed magnetic field falloff in spiral galaxies with radius being much slower than matter density falloff (3, ch. 323) may be explained with the plenum slope model of rotation curves as suggested in (5, chs. 10) and by noting the STOE explanation of the metallicity vs radius observation. That is, the rotation curve at outer radii implies a plenum divergence sufficient to repel the matter. The matter is hydrogen that feels the effect of plenum gradient more than other, more dense matter.

3 Discussion and Conclusion

The STOE model of the MB is a fine-tuning, negative feedback model of our universe. This suggests the fine-tuning is present in all size scales. Indeed, fine-tuning via negative feedback may be one of the fundamental characteristics of the universe. The theoretical problem is to identify the feedback loops and the part each process plays.

The STOE additions to the QSSC allow modeling the very small of the quantum mechanics realm. The STOE suggests a model of the photon and

describes diffraction experiments that reject wave models of light(5, chs. 12). The simulation program is consistent with the experimental results.

In addition, the STOE suggests a modified special relativity (5, chs. 13) and structures of elementary particles (6).

The problematical homogeneity and isotropy assumptions of the BB and the QSSC are unnecessary in the STOE. Also, the Sinks allow the universe to be unbounded, limited, and flat that is a philosophical issue since Newton's time.

The Scalar Theory of Everything (STOE) posits the components of the universe have a creation and an end. A Sink at the center of elliptical galaxies is added to the Source of the QSSC at the center of Spiral galaxies. This allows the explanation of many more anomalous cosmological observations and allows correspondence with quantum mechanics.

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