

# Nanoparticles and Dark Matter

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## Abstract

**Statement of the Problem:** Nanotechnology in the science of the very small and the search for dark matter in the very large Universe may appear to be unrelated, but in fact find commonality in nanoparticles or NPs. In nanotechnology, NPs are known [1] to conserve heat by emitting EM radiation instead of increasing in temperature because the Planck law of QM requires [2] the heat capacity of the quantum sized NPs to vanish. QM stands for quantum mechanics. In 1926, Hubble discovered [3] the Universe was expanding based on redshift measurements of light from receding galaxies. But cosmic dust NPs of mostly silicates permeate the Universe. Upon the NPs absorbing the galaxy light on the way to the Earth, an additional redshift [1] above the Hubble redshift occurs. Recession velocities are therefore overstated (See Figure 1) to the extent that to hold galaxy clusters together dark matter is thought to exist. But if Hubble redshift is corrected [4] for cosmic dust, dark matter need not exist as the galaxy clusters are held together by Newtonian mechanics. Because of the ubiquity of cosmic dust, all astronomical velocity measurements based on Hubble redshift are most likely overstated, e.g., the long-standing galaxy rotation problem [5] may be resolved without the need for dark matter if the redshift velocities are corrected for cosmic dust. **Findings:** Classical physics that allows the atoms in quantum sized dust NPs to have the heat capacity to fluctuate in temperature has misdirected cosmology to an expanding Universe. Contrarily, QM argues the Universe is not expanding suggesting cosmology return to Einstein's once upon a time notion of a static and dynamic Universe. **Recommendations** Searches for dark matter be discontinued in favor of redshift measurements in cosmic dust.

## Image

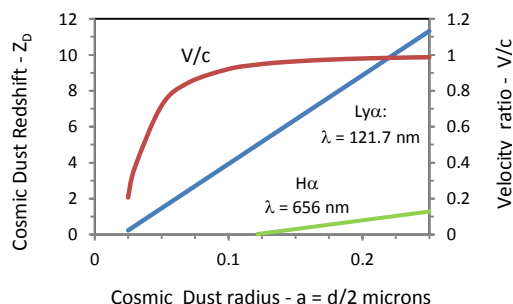


Figure 1. Overstated recession velocity  $V/c$  ratio caused by redshift  $Z_D$  in cosmic dust,  $c$  is the speed of light.

## Recent Publications

1. Prevenslik TV (2010-2017) See <http://www.nanoqed.org>
2. Planck M (1900) On the Theory of the Energy Distribution Law of the Normal Spectrum, *Verhandl. Dtsch. Phys. Ges.*, 2, 237.
3. Hubble E (1926) Extragalactic Nebulae, *Astrophys. J.* 64, 321.
4. Prevenslik TV (2015) Cosmic Dust and Cosmology, *Publications of the Korean Astronomical Society*, 30, 327-330.
5. Rubin VC and Ford WK (1971) Radial Velocities and Line Strengths of Emissions Lines Across the Nuclear Disk of M31, *Astrophys. J.*, 170, 25.



## Biography

Thomas Prevenslik developed the simple theory of QED based on the Planck law of QM. Differing from the complex QED by Feynman and others, simple QED assumes any heat absorbed in nanoparticles having high surface-to-volume ratios place interior atoms under high EM confinement that by the Planck law of QM precludes the atoms from having the heat capacity to conserve heat by an increase in temperature. In the instant topic of *Nanoparticles and Dark Matter*, the nanoparticles of nanotechnology take the form of submicron cosmic dust that permeates the Universe. Galaxy light redshift from the recession velocity of a galaxy and absorbed by cosmic dust on the way to the Earth undergoes an additional redshift. If the redshift is not corrected for cosmic dust, galaxy velocities are significantly overstated giving the impression that dark matter exists to hold galaxy clusters together when in fact dark matter need not exist as the clusters have and always will be held together by Newtonian mechanics

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## Notes/Comments: