

## **Continuum Theory (CT): its particle-tied aether yields a Continuous Auto-Creation (CAC) cosmology with no Big Bang; with implication for stellar metallicity and for understanding the construction and morphological evolution of galaxies and clusters**

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The findings of my preceding paper "Implementing Maxwell's aether illuminates....." are:-

(A) Maxwell's aether is a massless, quasi-superfluid continuum of extremely high negative charge density;

(B) fundamental particles are not infinitesimal singularities within the aether but develop their mass by being 'made out of it' as finite-sized vortical constructs of its motion (hence the name Continuum Theory), so reproduction ('auto-creation') of more of them is 'easy', requiring only the addition of suitable dynamical energy;

(C) in the resulting gravitational process, generation of the Newtonian force simultaneously also generates a radial electric field, the Gravity-Electric (G-E) field. Its astronomically ubiquitous action on plasmas yields net repulsion without change of tangential velocity; so this pattern in spiral galaxies doesn't need CDM if outward disk flow is present.

One of the objectives here is to provide that flow by axial infall and to examine its consequences.

First, if particles are 'made out of aether' the MM search for wholly independent aether motion was bound to fail. I will reason that the associated random aether-charge motion will generate the CMB radiation and impose four wavelength-independent transmission effects upon electromagnetic waves. One of these - a distance-cumulative redshift - is the cosmic redshift, plus intrinsic redshifts in stellar and galaxy 'atmospheres'. This redshift appears in fact to have been reliably observed over long ground-level paths [1] but was not recognized as such. So there was no BigBang. If the cosmic redshift is not a velocity, the need for Dark Energy vanishes.

In the resulting no-expansion cosmology the entire mass content of the universe has grown from the aether's original random motion and energy, by auto-creation over time, the local rate of which experiences positive feedback and acceleration as gravitational accumulations drive energy levels higher. Hence the clumpiness of galaxy distributions.

The infall of cosmogonically young material from the auto-creation auras of clusters has 3 major implications.

(1) It completely inverts the BigBang perspective that low-metallicity material, widespread in galaxy haloes, is very ancient.

(2) Quasi-axial infall of such broadly neutral material onto a Spiral will spread out in the galactic plane, driven radially from the ionizing bulge by the G-E field, maintaining constant tangential velocity. This pattern means that the arms, although trailing, are actually being blown outward (unwrapping), extensionally ruptured by the disk wind, and acting as filters for it. All without CDM. For such ongoing disruption of Spirals to prevail so widely means that originally each must have started life as an a.m.-conserving, tightly-wound spiral of mostly neutral, cosmogonically young material (mainly H), in which G-E field action was minimal until star formation and ionization had set in.

(3) In cluster interiors, other cluster members may deflect the two infall streams as they converge onto a Spiral, introducing a dynamical rotational couple near the centre, with an axis roughly in the galactic plane, to produce a Barred Spiral. Cessation of infall then results in endwise collapse of that bar, yielding a fattened Elliptical. Those are indeed typically concentrated in the centres of clusters and show a dearth of active star formation, consistent with being deprived of young infall.

I will present images and diagrams in support and elaboration of (2) and (3).

The CT model for quasars [2,3] offers light-element synthesis by the evolutionary precipitation of a runaway rotational shrinkage, with mass annihilation, extreme  $PT$  and emission of a GRB. Of special interest, relative to the arm's-length nature of BigBang cosmology, is that continuous auto-creation (CAC) cosmology is in principle available near-by for direct study and the development of strong observational constraints. In the context of (1), the very low metallicity (Pop II) of globular (star) clusters abundantly present in the halo of the Galaxy and of others points to them being (infallen?) local concentrations of quite young auto-creation. In that case the 'blue straggler' stars more recently formed in their core regions may be the youngest examples we have of ongoing auto-creation.

In summary, it appears that CT offers a much more directly observable Universe, with no BigBang, CDM, or Dark Energy, and a CMB indicative of the true temperature of intergalactic space, slightly enhanced if the path taken by the radiation passes a cluster. Its closely cavity-radiation character arises from infiniteness of the CT Universe.

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[1] Sadeh D, Knowles S, & Au B (1968) *Science* **161**, 567.

[2] Osmaston MF (2011) In *Proc. Natural Philosophy Alliance*. ed. CK Whitney, v. 7(2), 720-748. ISSN 1555 4775.

[3] Osmaston MF (2011) In *Physical Interpretations of Relativity Theory, Proceedings of the International Scientific Meeting - 'PIRT-2006'*, (ed. MC. Duffy, VO Gladyshev, AN Morozov, & P Rowlands), p. 287-317. ISBN 9785703835500. Available also from <<http://osmaston.org.uk>> in both cases.