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Presidents Report

John Rombi

Welcome to the April edition of *Prime Focus*.

I would like to thank last month's speaker Dr Andrew Hopkins for a brilliant presentation on "Our Galaxy"

Tonight

We are holding our A.G.M and after a "Trivia Night" put together by Anne & Trevor Rhodes.

A full listing of the year's happenings is in my A.G.M report.

Next month we are privileged to have world renowned (Australian) astronomer Prof Bryan Gaensler makes a return trip to M.A.S, Can't wait!!

Clear Skies, John Rombi

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Observing Dates

April

18/04/09 Stargard

20/04/09 AGM

25/04/09 The Forest

June

15/06/09 General Meeting

20/06/09 The Forest

27/06/09 Stargard

August

15/08/09 Stargard

17/08/09 General Meeting

22/08/09 The Forest

October

10/10/09 Stargard

17/10/09 The Forest

19/10/09 General Meeting

December

12/12/09 Stargard

19/12/09 The Forest

May

2/05/09 Public Night The Domes

18/05/09 General Meeting

23/05/09 The Forest

July

18/07/09 Stargard

20/07/09 General Meeting

25/07/09 The Forest

September

12/09/09 Stargard

19/09/09 The Forest

21/09/09 General Meeting

November

14/11/09 The Forest

16/10/09 General Meeting

21/11/09 Stargard

Secretary's Column

Roger Powell

The Annual General Meeting will be held at 7.30 pm on Monday 20th April 2009. The Notice of meeting and Agenda is published with the Annual Reports and on the website. The AGM will include the election of office bearers for 2009-10. Nominations are now closed - see the website "What's On" page for further details.

Unfortunately, two of our most active and long-standing committee members have indicated that they will not accept re-nomination.

- 1.) Daniel Ross has been Vice-President (twice); Secretary (once); and Committee Member (five times) during our thirteen year history. He has been outstanding in all his roles. Daniel has chaired general meetings and committee meetings in John's absence and was twice a 'Guest' Speaker last year, as well as taking on a range of other responsibilities. I sincerely hope that his absence from the committee is just a 'vacation'.
- 2.) Dick Everett has been Treasurer for the last six years, during which time he has also played a very active role in club affairs, other than just finance. During the period I had the pleasure of serving on the same committee as Dick I have come to increase my admiration of him as a wise man who does not make a lot of noise but when he has something to say, it is always very practical. These are admirable qualities for the rest of we committee members to aspire to.

Daniel and Dick both join a growing list of retired senior office bearers, including Noel Sharpe, Ian Cook and Bob Bee, who have all served the Society with great distinction yet still remain active.

Our website has developed into a huge asset to the Society since it was transformed by Chris Malickoff last year. To obtain the optimum benefit from it, members should ensure they are automatically logged on each time they visit. Also, don't forget to visit the new 'What's On' page.

So ends my first year on the committee. It has been a busy and enjoyable experience and I am delighted that after so many years as a member I have been given an opportunity to make a greater contribution.

The year was dominated by two major issues.

The first was the introduction of draconian laws to control the importation, ownership, possession and use of laser pointers. This legislation was not welcomed by the astronomical community but we have adapted our procedures and tried to develop a rapport with local police. So far no problems have occurred and I expect this to continue. However, for the greatest protection, members with laser pointers should register their laser pointers with the Society and always keep their laser pointers locked away.

The second issue was the decision that we believed the UWS Rotary Observatory to be under-utilised, especially for public use and that we should lobby to improve the situation. I am glad to say that the time John and I spent on this issue was very productive and has resulted in an improved relationship with the University and greater public access to the Observatory.

O

The sunspot number at the time of writing. Astronomers are saying that 'Our Favourite Star' is in an extremely deep solar cycle minimum. There have been an unusually high 600 spotless days since 2004 and the current stretch is seventeen consecutive days without a spot.

How Far Can your Telescope See?

Ian Cook

I refrained from my favourite answer as the gentleman standing before me during the March observing night at the university Rotary Observatory seemed serious.

How far **CAN** your telescope see?

I don't even need a telescope to see the Moon at 150,000 kilometres, Saturn at 1431 million kilometres, and even Omega Centauri on a clear night at 17,000 light years. So does distance really answer the question?

Maybe I should think in terms of an object's **Size or Magnitude** in judging how far my telescope can see? Well last week from my backyard I found the Eskimo Nebula which is 10th magnitude and 40 arc seconds in size. But that only makes sense to another astronomer!

Should I have told this man that I can split alpha Centauri (13 arc seconds), or alpha Crux (4 arc seconds), and even Rumker 20 at 1.8 arc seconds. Would **Resolution** tell him how far my telescope can reach? Somehow I think not.

If I were to tell him that my telescope is a **Time Machine** and that I can see *Backwards in time*, would he believe me? I can prove it by showing him the light that left *Galaxies and old stars in Clusters* millions of years ago. But he would have to take my word for it.

If he were prepared to stick around for a while, I could show him **my telescope can see into the Future!** The Great Orion Nebula hides young stars in its dusty cloud which with the passing of time will surely appear to our visible sight and prove me right. But he will not stay long enough for that!

In my life as an amateur astronomer I have been asked several times "How far can this telescope see?" I find it very difficult to answer in the time they are usually prepared to listen.

However I have found an answer that gives them something to think about and gives me some satisfaction. I tell them that my telescope has a spiritual filter and can see into the depths of Hell! Most react with a step backwards and a wary tone to their voice. Some then, look at me strangely and wander off to annoy some other person with a telescope.

For those who stick around, I show them a medium sized crater named Hell, visible on a ten day old moon within the large old crater Deslandres. Your telescope can obtain a spiritual filter too if you know the shoreline of "The Sea of Clouds", where Deslandres is halfway between Tycho and the "Straight Wall". Have a look into Hell, bottom centre within large shallow crater.



IC Stars

Black Holes Ain't Holes – Part 9

An essay on the problems perceived with the concept of black holes

Robert Zindler

(Editors Note: Robert Zindler has kindly offered the readers of Prime Focus sections of an essay he producing. Each month you will find the next extract from this essay.)

INCONSISTENCIES AND CONTRADICTIONS

Inconsistencies in the standard cosmological model – SCM

As demonstrated, the concept of the cosmic big bang holes and galactic black holes and their associated singularities and properties, is an astonishing combination of inconsistencies and contradictions, impossibilities, anomalous physical principles and concepts and violations of natural laws, logic and self-consistencies, resulting from misinterpretations in the process of retro-reasoning, that have resulted in the misconception of 'naked' gravity which putatively destroys the structural configuration of matter, whilst continuing to accrete and absorb surrounding matter throughout its putative existence, only to change that matter into black hole gravity. This issue is addressed in numerous statements encountered throughout recent cosmological literature and as quoted in this essay. This is also re-enforced in the following:

"Black holes are not holes at all, but objects so dense that not even light can escape their immense gravity (Richard Macey, *Black hole spotted in our own backyard*, Sydney Morning Herald (?), 4 November, 2005).

The concept of *a singularity with infinitely high gravity* (or for that matter temperature, density and pressure) is a contradiction in term: i.e. *infinite gravity in a point*. Science abhors contradictions.

This has significant scientific theoretical problems. It simply cannot be done. This becomes a serious cosmological problem, because the entire SCM is predicated on the *unquestioned* validity of these concepts and issues associated with the black hole and its singularity.

Cosmological conundrums

It is clear that the concept of the *black hole* is massively self-contradictory, is internally inconsistent and seriously violates natural laws, has given rise to several absurd and misleading misconceptions and is therefore meaningless. This is scientifically not very satisfactory. A *black hole* is, thus, an *unfortunate misnomer* that deceives speakers, listeners and illustrators alike.

The cosmological community got itself into difficulties with its concepts of the black hole. This was exacerbated by the paradigmatic, but unproven pre-supposition of the concept of an entirely pristine 'beginning of the universe'. This, in turn, was not helped by the concept that the limited *observable universe*, in effect, is deemed to represent the *entire cosmos*. This is assumed because the also undeniably present *unobservable universe*, which is larger than, and surrounds and contains the observable universe, is by scientific criteria, scientifically irrelevant and tends to be ignored, or at least discounted by most scientists. This pair of cosmological conundrums lies at the heart of cosmologists' inability, thus far, to find the ToE (theory of everything) and leads to the many exotic hypotheses that muddy the cosmological waters.

ILLUSTRATIVE PROBLEMS

Misrepresentations

David Adam wrote on "*Hawking: 'I've resolved black holes'*", in The Guardian Weekly, July 30 – August 5, 2004, p19: "... Hawking said he now believed that black holes, *the mysterious massive vortexes* (my emphasis) formed from collapsed stars..." A vortex, incidentally, is a fluid that swirls in the shape of a funnel with increasing velocity as the fluid approaches the narrow throat. But a vortex cannot flow spherically and a black hole is a sphere with a unidirectional flow from all directions on the spherical boundary toward a single central point. Therefore, a black hole cannot be represented by a vortex.

The misconceptions of black holes are exacerbated by the real problem of attempting to represent a black hole as a hollow sphere in graphic illustrations. Illustrators have insurmountable problems with depicting the inner parts of a hollow spherical body with no defined boundaries and have resorted to the illustration of black holes by representing them in the shape of a vortex or *funnel*. During the last decade, many superb and imaginative illustrations have depicted these beautiful funnel-like black holes. But they led to inevitable misinterpretations and misconceptions of black holes, as a *funnel* where the apex or throat, which purports to represent the black hole singularity, is far removed from its circular opening, and cannot by any stretch of the imagination represent the centrally located singularity in the putative spherical black hole. Furthermore, illustrations of a funnel-shaped 'black hole', take on lives of their own and have led to fanciful concepts and descriptions of 'falling into the hole', 'moving toward the singularity', 'spaghettification', 'worm holes', 'time travel', 'multiverses' and other exotic ideas.

Together, the concepts of the point-singularities and the funnel-like illustrations of black holes, have led cosmologists into an invidious, unsolvable position from which cosmologists seem unable to extricate themselves.

Public relations

The name *black hole* is not only fundamentally wrong, it generates false impressions which are reinforced by the misleading descriptive illustrations which cannot even be reconciled with the concept of a spheroidal hollow black hole.

But the name 'black hole' has a wonderful, mysteriously romantic air about it. It is catchy, but it also implies something intrinsically dangerous, as exemplified by the real fear expressed by some experts, that the Large Hadron Collider currently being built at CERN in Geneva may be generating 'black holes which may destroy the entire earth'. *Black hole* is a remarkably emotively charged name for one of the most intriguing cosmic phenomena: 'the cosmic body with gravitational force so great that it consumes its surroundings and even light cannot escape its boundary'. The name *black hole* conjures up a certain semi-mystical fascination and is an excellent PR term for cosmology in order to generate public interest in the subject.

But it is time that this charade of the public relations-perpetuated, funnel-shaped image of the black hole and its point-singularity is abandoned. In this work the concept of the, admittedly less spectacular and less imagination-stirring, concept of the *galactic solid quark* core and the *primordial proto-energy* cores is adopted in order to obey physical law, logic and self-consistency.

PROPOSED ALTERNATIVES

A proposed reconsideration of the concept of black holes

From the above discussion, it must be concluded that the concept of a black hole and its singularity is physically not possible. In fact: "Black holes are not holes at all, but objects so dense that not even light can escape their immense gravity. (Richard Macey, *Black hole spotted in our own backyard*, Sydney Morning Herald (?), 4/11/05).

I suggest that this conundrum can be resolved with my 'solid' primordial and galactic cores consisting of proto-energy strands, in the place of black holes with their putative point-singularities and their many problematic properties, and also with the concept of a cyclic cosmos. (The concept of the proto-energy strands is the subject of another paper.) Consequently, the following suggested properties of the so-called black hole may be reconsidered:

- A putative 'black hole' is in effect a cosmically significantly sized, spheroidal, solid *proto-energy* core of the big cruncher/big bang, or a centrally located solid *quark* core in large galaxies.
- The 'singularity' – of whatever size – cannot exist, thereby avoiding violating Pauli's principle, but the entire so-called 'black hole' could be a solid irreducible and incompressible cosmic core body.
- The 'event horizon' is misnamed and should be called the 'perimeter' of the solid core.
- The 'Schwarzschild radius' is no more than the radius of a solid spheroidal cosmic core.
- The temperature, pressure, density and gravity of the cosmic and galactic cores may attain high, but never the putative infinite or near-infinite levels as envisaged for a cosmic or even the galactic singularities.
- The cosmic mass is essentially preserved in a different physical form, but occupies a much smaller space. This obeys conservation law, but also IS the original source for the generation of a newly expanding cosmos.
- The density of a core is the maximum possible in the ultimately irreducible and incompressible solid *proto-energy* core in the primordial cosmos and in the *near-irreducible* and incompressible solid *quark* core in galaxies.
- As all matter – including the matter of the core – is subject to entropy and must therefore emit gravitational force or energy, the solid core must become smaller in time, confirming Hawking's 'radiation' or 'grey-core' concept.
- Processes of 'falling *into* a black hole', 'moving toward the singularity', 'spaghettification', 'wormholes', 'time-travel', 'multiverses' and the like, must be relegated to the realms of fertile imagination, both inside and outside cosmology.
- In effect, I posit that all cosmological research and tests that have been and are now being conducted to elicit information about and from black holes, are in reality conducted on solid galactic cores. I further posit that these cores are spheroidal quark cores for small to medium sized galaxies and proto-quark cores for massive and super massive galaxies and clusters of galaxies.
- I posit that there are fundamental differences between the solid, spheroidal primordial cosmic core and the solid, spheroidal galactic cores.

Some putative properties of solid cores

The gravity emitting primordial cosmic core:

- Is spherically surrounded by a contracting 'mantle' of convergently-compressing cosmic matter.
- Does not spin.
- Does not emit cosmic matter.

The gravity emitting galactic core:

- Is surrounded by a contracting 'torus' of convergently-compressing cosmic matter and 'fields' on the cosmic matter in its surrounding galactic disc.
- Spins at nearly the speed of light, like neutron stars, as do, albeit at different rates, almost every kind of object in space; such as planets, stars and galaxies.
- Emits highly energised jets in opposite directions along the spinning axis at nearly the speed of light, 'perpendicular from the plane of matter that orbits it'.

The final straw.....?

And now a conundrum of contradictions.

To quote just one statement among the many similar ones: "According to general relativity, all the matter that makes up a black hole is crushed together at a single miniscule point at the black hole's centre (see page 10 in this paper)."

And then to quote some others among the many similar ones: "Large black holes with *millions to billions of solar masses of material* (p 12)." and "...according to Einstein's theory, there is no minimum mass for a black hole (p 10)." and "(The)...total area of the event horizon of a black hole always increases (p 11)."

Now, let us remind ourselves of the significance of these familiar statements:

- **The singularity and contradiction one:** If all matter that is accreted by a black hole is concentrated into the singularity – and in the process is trans-configured into infinite levels of temperature, density and gravity (ignoring for the time being the issue of pressure) – why does the Schwarzschild radius and the event horizon increase with the additional accretion of billions of solar masses?
- **Increased event horizon and contradiction two:** With the accretion of billions of solar masses by a black hole, with the increases of the Schwarzschild radius and the event horizon, why and how are these solar masses putatively trans-configured into infinite values of temperature, density and gravity and concentrated into a physically non-existing point-singularity?

I posit that the concepts of the black hole and its singularity with its infinite values and the concept of the increasing Schwarzschild radius and event horizon of the black 'hole' are fundamentally incompatible. This is yet another example of the serious lack of self-consistency in the standard cosmological model. It seems that either the experts don't know how to make up their minds, or that they are attempting to have a bet each way. The irony is that neither concept may be right.

Scientists who do subscribe to the concepts of galactic 'cores' that 'contain' the masses of millions to billions of solar masses – where both the Schwarzschild radius and the event horizon increase proportionally with the accretion of additional solar masses, already have a more realistic appreciation of the physical structures of galactic cores, whilst continuing to pay lip-service to the absurdities of the 'black hole' and its singularity for public consumption and because they have no viable alternative theory for the standard cosmological model. Fortunately such an alternative theory is currently being finalised.

Galactic cores

The cores of galaxies may start as neutron stars. When galactic and neutron-star cores become larger than certain multiples of solar masses in ultra-large galaxies, the pressure within the contracting galaxies may become so great that the galaxies themselves and their cores become compressed in a process which I have named *convergent-compression* (see Definitions) and subsequently compact to *near-irreducible* and *incompressible* quark-star densities. Galactic neutron-star and quark-star cores are spheroidal, accrete matter from their surrounding galactic discs and tend to become larger.

Solid cores

Every galactic core consists of a developing solid irreducible and incompactable mass of core matter and a surrounding mass of gravity-induced, inward-flowing, convergent-compressing *mantle* of cosmic matter, essentially made up of hydrogen (with some helium) gas and dust. The density throughout this *mantle* ranges from 100% at the perimeter of the solid core and reducing to a minimum (unspecified) at the outer boundary of the mantle.

The galactic solid core is invisible to the observer, because of the density of its surrounding mantle of cosmic matter, which acquires ultra-high (but never infinite or near-infinite) values of temperature, pressure, density and gravity surrounding the core.

Conceptual support

Especially during the later stages of developing my challenges to the standard cosmological model and its many associated problematic sub-theories, it has been most gratifying to find so many references in cosmological literature to cosmological aspects which came close to, and have even tended to support my own proposed new ideas. I refer also to statements in an article by Stephen Bettersby in: *'Stretching strings make 'fuzzy' black hole gives up its secrets'* (New Scientist, 13 March 2004, p 10). Bettersby states: "Black holes may be filled to the brim with giant strings and vibrating membranes", an idea suggested by Samir Mathur and colleagues at Ohio State University in Columbia, USA, who were investigating a puzzle called 'the black hole information paradox' which has resulted from the work of Stephen Hawking and Roger Penrose. The idea of a brimful *black hole* filled with strings and membranes, "contradicts the conventional view of (hollow and presumably 'empty') black 'holes', which says that all the matter inside a black hole is crushed and crammed *into an infinitely dense point* (my emphasis)...in the centre of the hole...(Ibid.,10)" Mathur calls these *black holes* "fuzzballs".

Mathur's hypothesis eloquently supports my own claim that *black holes* are NOT hollow cosmic objects with non-existing point-singularities and remote event horizons, separated by vast internal empty spaces, but are more likely to be solid cosmic core bodies, composed – in my hypothesis – of *quarks* or *proto-quarks*, or even *proto-energy strands*. And Mathur even implies that "... it might even be that the universe (cosmos) did not emerge from a singularity at all, but from a fuzzball." (Ibid., p11)

Penrose and Hawking

From the above, it may be recognized that the process of *retro-reasoning* adopted and employed by Roger Penrose and Steven Hawking, in order to hypothesize on the 'origin' of the universe was perhaps not so far off after all, and may have been a subconscious recognition of the *periodicity of a finitely sized and infinitely aged cyclic cosmos* – with some minor modifications. If Penrose in his process of retro-reasoning replaces the *point-singularity* of the big bang with an *incompressible and irreducible cosmic core* with cosmically significant dimensions – say that of a solid 'proto-energy' core (my proposal) – then Penrose has given a superb rendition of one of the two basic cosmic repeatable phases in the history of a cyclic cosmos, i.e. the *implosion* period in the ongoing evolution of the cosmos, the other being the *explosion* period which we are now experiencing. Both Penrose and Hawking may well have been absolutely right after all – with some modifications.

Prime Focus Article Submission

Deadline for article submissions for the May edition of Prime Focus is

Monday 11th May 2009

All Articles can be submitted via email editor@macastro.org.au
Or via snail mail to the MAS Postal address

PLEASE NOTE THE CHANGE OF EMAIL ADDRESS FOR SUBMISSIONS!!!