

On the Alleged ‘Supermassive Black Hole’ in the Bright Quasar 3C 279

(An Open Letter to Weintraub et al.)

by

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ABSTRACT:

On the 18th July 2012 Weintraub et al. reported the alleged discovery of a supermassive black hole in the bright Quasar 3C 279 in the following online article ‘**APEX takes part in sharpest observation ever**’ 18-Jul-2012, (http://www.eurekalert.org/pub_releases/2012-07/e-atp071612.php). On the 19th July 2012 this Open Letter was forwarded to the scientists who jointly reported this. It explains, in very simple physical terms, why it is impossible for there to be a black hole in Quasar 3C 279.

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Dear Scientists,

I refer to the online report ‘**APEX takes part in sharpest observation ever**’, 18-Jul-2012, (http://www.eurekalert.org/pub_releases/2012-07/e-atp071612.php) in which your names and email contacts are specifically mentioned.

You report that there is a supermassive black hole in the bright quasar 3C 279 and that

“The Event Horizon Telescope will be able to image the shadow of the supermassive black hole in the centre of our Milky Way galaxy, as well as others in nearby galaxies.”

I draw your attention to the following simple facts which prove that there cannot be a black hole in quasar 3C 279, at Sgr A*, or at the centres of any galaxies, contrary to the assertions in the aforementioned report.

I first remark that all alleged 'black hole solutions' to Einstein's field equations pertain to a universe that contains only one mass, namely, the mass of the alleged black hole itself. There are no known solutions to the field equations for two or more masses and there is no existence theorem by which it can even be asserted that the field equations contain latent solutions for two or more masses. So all black hole 'solutions' cannot model the Universe at all because the actual Universe obviously contains more than one mass. According to the Dictionary of Geophysics, Astrophysics, and Astronomy [1]:

"Black holes were first discovered as purely mathematical solutions of Einstein's field equations. This solution, the Schwarzschild black hole, is a nonlinear solution of the Einstein equations of General Relativity. It contains no matter, and exists forever in an asymptotically flat space-time."

Note that the black hole is a General Relativistic object. Now in General Relativity the Principle of Superposition does not apply, which means that one cannot simply pile up masses at will, black holes of otherwise, in any given spacetime to get more masses as one pleases because the field equations must be solved separately for each and every configuration of matter proposed, in terms of an appropriate energy-momentum tensor that describes the proposed configuration of matter. In other words if A and B are separate solutions to Einstein's field equations the linear combination $aA + bB$, where a and b are scalars, is not the overall gravitational field due to A and B separately. However, in Newton's theory the Principle of Superposition does apply. Concerning the fact that the Principle of Superposition does not apply in General Relativity, Landau and Lifshitz, for instance, remark [2]:

"In a gravitational field, the distribution and motion of the matter producing it cannot at all be assigned arbitrarily --- on the contrary it must be determined (by solving the field equations for given initial conditions) simultaneously with the field produced by the same matter."

So, upon what energy-momentum tensor do you rely for the alleged black hole in quasar 3C 279 and hence upon what solution to Einstein's field equations do you rely for its presence? There is in fact no known set of field equations for the black hole alleged in quasar 3C 279, or for that matter any black hole at the centre of any galaxy. Moreover, owing to the foregoing one cannot, by an analogy with Newton's gravitational theory with its valid Principle of Superposition, assert that the black hole can exist in multitudes, merge or collide or otherwise interact with one another or other matter, be located at the centres of galaxies, suck in surrounding matter, that a black hole can be a component of a binary system, or that a black hole 'solution' can model the actual Universe in any way whatsoever.

By an inadvertent blending of two different and incompatible theories, by means of an inappropriate application of the Principle of Superposition, you have produced for the alleged black hole in quasar 3C 279 a Newtonian universe containing a non-

Newtonian entity (a black hole), which is impossible; or conversely, a Relativistic universe that contains additional masses besides that of the black hole, which is also impossible, as explained above.

Interestingly, it has been alleged by Schmidt et al. that there is a black hole binary system in Nova Scorpii [3]. This claim is also fallacious for the very same reasons that there cannot be a black hole in quasar 3C 279, at Sgt A*, at the centres of any galaxies or in the actual Universe. I refer you to the following two short papers which explain in more and easy to follow detail why this is so:

‘On the Alleged “Black Hole” Binary in Nova Scorpii’
<http://vixra.org/pdf/1206.0081v1.pdf>

Proof of no “Black Hole” Binary in Nova Scorpii
<http://vixra.org/pdf/1206.0080v1.pdf>

The first paper contains no mathematics at all and the second paper a little mathematics that does not go beyond senior high school calculus, and so both papers are quite easy to follow, and are well referenced. The straightforward arguments presented in these two papers also pertain directly to the fallacy of alleged black holes in quasar 3C 279, Sgt A*, all other galaxies, and hence in the actual Universe.

Yours sincerely,
Stephen J. Crothers

REERENCES

- [1] Richard A. Matzner, Ed., Dictionary of Geophysics, Astrophysics, and Astronomy (CRC Press LLC, Boca Raton, LA, 2001).
- [2] L. Landau & E. Lifshitz, The Classical Theory of Fields (Addison-Wesley Publishing Co., Reading, MA, 1951).
- [3] B. Schmidt et al, “Formation of the Black Hole in Nova Scorpii”, The Astrophysical Journal, 567: 491-502 (1 Mar 2002).