

The Corda Dialogues

by

Stephen J. Crothers

In a paper entitled [A clarification on the debate on "the original Schwarzschild solution"](#) posted to the [arXiv](#) on 28th October 2010 (arXiv:submit/0135519 [gr-qc] 28 Oct 2010), Dr. Christian Corda attempted to refute my work and that of others who, like me, have proven that the "Schwarzschild solution" from which the black hole was spawned, is NOT Schwarzschild's solution and that [Schwarzschild's actual solution](#) does not contain a black hole. Corda sent his paper to a third party and requested that third party to send his paper on to me. I read Corda's paper and found nothing new in it as it more or less regurgitates the usual erroneous dogma on the alleged "Schwarzschild black hole". This led to an exchange of email between Corda and me, which is reproduced below. In the course of our correspondence I requested Corda to post [this paper](#) to the arXiv as it addresses in detail the essential issues raised in his paper. I pointed out to Corda that I have no access to the arXiv. Corda refused to post my paper to the arXiv because, wait for it, he disagrees with me. I brought his attention to the fact that his disagreement does not constitute a criterion by which my paper should not be posted to the arXiv. After all, his paper can be read by all and sundry, whereas my paper has much less exposure, owing to censorship by the likes of Corda. Thus, Corda has acted in a most unscientific fashion which must be exposed - hence this webpage.

Wed, Nov 3, 2010

Dear Dr. Corda,

Dr. Jeremy Dunning-Davies sent me your paper: A clarification on the debate on "the original Schwarzschild solution".

I do not think that you have rightly understood my papers or those of the late Dr. Leonard S. Abrams, or those of Loinger and Antoci. In a recent article I was ridiculed by one Dr. Jason Sharples. Although I wrote a reply to Sharples my right of reply, contrary to academic procedure, was denied to me by the Editor-in-Chief of the journal 'Progress in Physics'. Here is my reply to Sharples, as it addresses the issues, amongst others, that you deal with in your paper:

www.sjcrothers.plasmaresources.com/REPLY.pdf

All my relevant papers can be found here:

www.sjcrothers.plasmaresources/papers.html

Unlike you I am denied access to the arXiv site. Perhaps you could try to post my reply to Sharples (and hence, implicitly, also to yourself) on the arXiv. I shall be very surprised if my paper appears on the arXiv. The arXiv administrators are not noted for their veracity or sense of fair play.

Yours faithfully,
Stephen J. Crothers.

Fri, Nov 5, 2010

Dear Stephen,

thanks for your email. First of all, let me emphasize that the way you was treated by your University is disgraceful and you have my full solidarity on this sad story.

On the other hand, in all honesty, I think that you fight a very correct battle in a very wrong way.

Note that I think that BHs do not exist, that Hawking radiation is an enormous nonsense, that Penrose's Singularity Theorem is a respectable mathematical exercise but that it has nothing to have with the real physical world.

But I also think that it is not only wrong, but also favourable to the BHs proponents, the insistence of people like you, Loinger etc. who always insist to claim that "the original Schwarzschild solution is the correct one and the Hilbert's version is surely wrong". In my opinion, the Hilbert's solution is MATHEMATICALLY correct. It is simple to immediately verify this point: if one puts the Hilbert's metric within Einstein field equations these are immediately satisfied! On the other and, the Hilbert's solution achieves the light deflection, the gravitational delay, the gravitational redshift and the precession of Mercury's perihelion with an INCREDIBLE AND EXCEPTIONAL PRECISION.

I think that there is only a way to remove the singularity in the core of a collapsed star within the classical theory of Einstein's general relativity, i.e. proposing viable hypotheses

which govern the geometry of evolving of the collapse of star. I published a paper in this sense in Mod. Phys. Lett. A and I am going to develop a new idea in next months.

Again, in all honesty Stephen, I think that you exaggerates. One thing is telling that BHs do not exist, a different thing is telling that gravity-waves are fictitious entities which do not exists in the physical reality and the Universe is not expanding! I regret Stephen, but you and Loinger are very very wrong. Einstein demonstrated the existence of gravity-waves in two historical papers in 1916 and 1918 CLAIMING that they are CONCRETE physical entities. He also claimed that we will never detect them because their direct coupling with matter is too much weak. In fact, gravity-waves detectors have not yet achieved the extremely sophisticated technology needed for detecting such a coupling which consists in measuring proper distances of, at least, 10 to minus 18 meters!!

Again, you arrives to claim that that $R_{\mu\nu} = 0$ is wrong as it violates Einstein's Principle of Equivalence!!! You do not understand that in this way you slanders the same Einstein. In fact, the derivation of $R_{\mu\nu} = 0$ was a FUNDAMENTAL INTERMEDIATED STEP that Einstein realized in order to obtain the final equations $R_{\mu\nu} = 8\pi * T_{\mu\nu}$. Again, $R_{\mu\nu} = 0$ achieves the light deflection, the gravitational delay, the gravitational redshift and the precession of Mercury's perihelion with an INCREDIBLE AND EXCEPTIONAL PRECISION even in its linearized approach.

In my opinion, you should change your way to proceed. Do you really think that not only the present community of gravitational physicists but also the same Einstein, Schwarzschild, Hilbert, etc., i.e. the Founders Fathers of General Relativity, were wrong and the only correct person is Stephen Crothers? The only result that you will obtain will be to become further isolated. In fact, I know that you have been an Editorial Board Member of 'Progress in Physics' but now you quarrel with its Editor-in-Chief too!! You tells that your right of reply to Sharples, contrary to academic procedure, was denied to you by him. But I am Editor-in-Chief of two international journals and I well know that a rebuttal can be published ONLY following the peer-review process of the other regular papers, i.e. after the positive judgement of an Handling Editor and, at least, two expert

referees.

In my opinion, you are SURELY an intelligent person who emphasize concrete problems within the gravitational physics, but you should do not extend to all the community of gravitational physicists your correct hating against scoundrels who damaged you in the past. You will find nobody who will follow you in this direction.

Cheers,
Ch.

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USA

Thu, Nov 11, 2010

Dear Dr. Corda,

Thanks for your email. As I said in my initial email to you, in response to your arXiv paper (attached below), I do not think that you have understood the papers by me, by L. S. Abrams, by S. Antoci, and by A. Loinger. I accordingly refer you once again to my reply to J. Sharples for details. It seems to me that you did not read that paper carefully, if at all. Abrams, Loinger and Antoci are right: black holes are nonsense. My own work on 'black holes' considerably extends that of Abrams.

I note that in your email that you are also of the view that black holes do not exist, and although you acknowledge that I was treated very badly by the professors at the University of New South Wales, your email is disappointing because you do not address the arguments I have adduced in my reply to Sharples

(www.sjcrothers.plasmareources.com/REPLY.pdf) to which I referred you and which is in effect also a reply to your arXiv paper. In my aforementioned paper I have quoted extensively from the literature so that there can be no contest as to what is claimed by Einstein and his followers. Furthermore, you reproach me in your arXiv paper but did not attempt to post my reply to Sharples to the arXiv archive as I had requested you to try to do. Thus, you have done the same as Rabounski and Sharples in that you

can say what you please about my work in a forum before which I have no right of reply. That is very convenient for you but I regard it as both unscientific and unfair. I reiterate that I have been denied right of reply by Rabounski and that I have no access to arXiv. It is true that I was once an associate editor of Rabounski's journal 'Progress in Physics' (www.ptep-online.com), at his invitation, but I resigned in protest because of his refusal to grant me right of reply to Sharples, in violation of both academic procedure and Rabounski's own published [Declaration of Academic Freedom](#). This is made even worse by the fact that Sharples misrepresents me in his paper, creating the proverbial straw man, by which he then asserts that I am wrong. Rabounski did not prevent Sharples from perpetrating this misrepresentation and published his paper without question. I also point out that Rabounski and Borissova acknowledged the validity of my work on black holes some years ago in this paper:

www.ptep-online.com/index_files/2008/PP-12-18.PDF

In your previous email to me you claim that because Hilbert's metric satisfies $\text{Ric} = 0$ it is mathematically correct. This argument is a standard one but quite erroneous. Satisfaction of $\text{Ric} = 0$ is a necessary but insufficient condition because it is an irrefutable fact that the quantity r in Hilbert's metric, with its alleged black hole, can be replaced by ANY analytic function $R(r)$ without violation of spherical symmetry and without violation of $\text{Ric} = 0$. For instance, take $R(r) = \exp(r)$. The resulting metric is spherically symmetric and satisfies $\text{Ric} = 0$, but it is nonsense nonetheless (in this case it is not asymptotically Minkowski space, as required by Einstein and his followers). One requires both far and near boundary conditions to determine an adequate solution. This simple fact has been completely overlooked by Einstein, Hilbert and their followers. There is an infinite number of analytic functions that satisfy $\text{Ric} = 0$ and spherical symmetry but which are utter nonsense insofar as physics is concerned. This was also pointed out in 1923 by A. S. Eddington. It is the FORM of the line-element that governs the related geometry, not the usual mere unjustified assumption as to the range on the quantity r in Hilbert's metric. One cannot simply ignore the geodesic radial distance in the related manifold. Contrary to your standard claim, the quantity r that appears in the

"Schwarzschild solution" is NOT a radius of anything in the associated manifold. It is NOT even a distance in the associated manifold. It is easily proven, as given in a number of my papers, that this r is the inverse square root of the Gaussian curvature of the spherically symmetric geodesic surface in the spatial section of the "Schwarzschild" manifold. Radial distances in the "Schwarzschild solution" must be determined by an integral over the component of the metric that contains dr . I have addressed this matter repeatedly in my papers and developed it in detail from first principles in this paper:

www.ptep-online.com/index_files/2007/PP-09-14.PDF

I have advanced in my papers a metric that is well-defined for all values of the parametric quantity r but one. In other words, it is defined for the whole real line except for one arbitrary point therein. There is no "Schwarzschild sphere" involved, because the said "sphere" does not exist. This too I have dealt with in detail in my reply to Sharples and a number of other of my papers. Here is another paper, published in Progress in Physics, which deals with the relevant geometry of the "Schwarzschild solution":

www.ptep-online.com/index_files/2005/PP-02-01.PDF

It is an irrefutable fact that nobody has ever found a black hole, despite the now almost daily claims for their discovery all over the place. The alleged signatures of the black hole are an infinitely dense point-mass singularity and an event horizon. Nobody has ever found an infinitely dense point-mass singularity and nobody has ever found an event horizon and so nobody has ever found a black hole. All claims to the contrary are merely wishful thinking. I would like to see the astrophysical scientists provide the coordinates of just one infinitely dense point-mass singularity and the coordinates of just one event horizon. To date they have not done so; but that is not surprising, since they have no such coordinates and no such entities.

I remark that it is claimed on the one hand by the astrophysical scientists that the escape velocity of a black hole is that of light in vacuum. If that is indeed the case then light can escape from a black hole because it travels at the escape velocity, and so the 'black hole' can be seen by all observers. On the other hand, it is also claimed by the very

same astrophysical scientists that light cannot even leave the black hole event horizon and so the black hole is invisible to all observers, no matter how close the observers are to the event horizon. This is a contradiction. Furthermore, if the escape velocity of a black hole is that of light in vacuum then material bodies can leave the 'black hole' but not escape since no material body can, according to the Theory of Relativity, acquire the speed of light in vacuum. Thus, the usual arguments are spurious. And one can only wonder how observers can be present in a spacetime that by construction contains no matter (i.e. $Ric = 0$), since observers must surely be material. The astrophysical scientists also claim that the theoretical Michell-Laplace dark body associated with Newton's theory is a kind of black hole. That too is false. Black holes are not predicted by Newton's theory of gravitation either, despite the claims of the astrophysical scientists that it does. The Michell-Laplace dark body possesses an escape velocity, whereas the black hole has no escape velocity; it does not require irresistible gravitational collapse, whereas the black hole does; it has no infinitely dense point-mass singularity, whereas the black hole does; it has no event horizon, whereas the black hole does; there is always a class of observers that can see the Michell-Laplace dark body, but there is no class of observers that can see the black hole; the Michell-Laplace dark body can persist in a space which contains other matter and can interact with that matter, but the spacetime of the "Schwarzschild" black hole (and variants thereof) is devoid of matter and so it cannot interact with any matter. Thus the Michell-Laplace dark body does not possess the signatures of the alleged black hole and so it is not a black hole.

If you consider the so-called "Schwarzschild solution" due to David Hilbert, and write it in terms of c and G explicitly instead of setting $c = 1$ and $G = 1$, you will immediately see that the square of Newton's expression for escape velocity appears in two components of the associated metric tensor. But Newton's expression for escape velocity, even though it contains only one mass term, is implicitly an a priori two-body relation (one body escapes from another body) and so it cannot appear in what is alleged to be a one-body universe, bearing in mind that ALL so-called black hole "solutions" pertain to a universe that contains only one alleged mass. If one sets $c = 1$ and $G = 1$ as is usually done in Hilbert's metric, and as you do in your arXiv paper, it is

claimed that the Newtonian potential appears. This too is misleading since the Newtonian potential is also an a priori two-body relation even though only one mass term appears in Newton's expression for potential - the Newtonian potential is defined as the work done per unit mass against the gravitational field, where the latter is in turn defined in terms of two bodies. Newton's gravitational potential has no meaning in a universe that is alleged to contain only one mass. The two-body relations of Newton's theory cannot rightly appear in expressions that are alleged to describe a universe that contains only one mass by construction (the alleged cause of a gravitational field), such as those for black holes.

According to Einstein and his followers, $\text{Ric} = 0$ describes a universe that contains no matter, by construction. But if that is so then there is no matter present to cause the gravitational field, bearing in mind that the field equations are also claimed to couple the gravitational field to its sources. One cannot remove matter by setting $\text{Ric} = 0$ (i.e. $T_{uv} = 0$) and then insert a mass, post hoc, by means of Newtonian two-body relations, into the resulting metric in order to introduce a cause of the alleged gravitational field "outside the body". Recall that it is also claimed that the gravitational field "outside" the alleged black hole is caused by the black hole itself, in which case it must be described by a non-zero energy-momentum tensor, not by $\text{Ric} = 0$. $\text{Ric} = 0$ contains no matter by construction and so does not couple any matter to the 'gravitational field'. Moreover, there is not one shred of physical evidence to suggest that a gravitational field can be generated by anything other than multiple masses. Also, the transformation to "Schwarzschild" spacetime does not involve a transformation of Special Relativity since no masses are involved in the generalisation. "Schwarzschild" spacetime is only a generalisation of Minkowski spacetime and Minkowski spacetime is not Special Relativity because the latter involves matter whereas the former does not. The transformation from Minkowski spacetime to Schwarzschild spacetime produces a set of equations that are all functions only of the metric tensor and which reduce to functions of one component of the metric tensor, none of which contain matter since $\text{Ric} = 0$ precludes all matter by construction. The single constant of integration that appears in the generalised metric is therefore not a function of mass. It cannot be associated with mass by a

post hoc introduction of the implicitly two-body Newtonian expressions for escape velocity or potential.

I reiterate that all alleged black hole "solutions" pertain to a universe that contains only one mass. Now General Relativity is a non-linear theory and so the Principle of Superposition does not apply. Consequently one cannot simply add masses to a given solution to the field equations. Every different configuration of matter requires a corresponding set of field equations to be solved. There are no known solutions to Einstein's field equations for two or more masses and no existence theorem by which it can even be asserted that the field equations contain latent solutions for multiple masses. It is therefore impossible to assert, according to Einstein's theory, that the black hole exists in multitudes or can be present at the centres of galaxies or interact with other matter or be components of binary systems. The astrophysical scientists routinely and glibly assert that the "Schwarzschild" black hole can exist in multitudes and can form binary systems, either with one another or with a star, and exist at the centres of galaxies (see my reply to Sharples for detailed quotations from the literature). Similar claims are made for other types of 'black holes'. In the case of Hilbert's black hole it is alone in the universe, by construction, and so another such black hole cannot be present, for otherwise each Hilbert black hole is in the EMPTY spacetime of the other Hilbert black hole, contrary to $Ric = 0$ that applies to each 'black hole'. An analogous situation exists for other types of 'black holes'. Multiple black holes have been achieved by applying the Principle of Superposition where the Principle of Superposition does not hold and so the notion of multiple black holes is also completely invalid.

Despite your objections, according to Einstein and his followers his Principle of Equivalence and his Special Relativity must manifest in sufficiently small regions of his gravitational field and that these regions can be located anywhere in his gravitational field. I have quoted and cited extensively in my papers from Einstein and his followers, including my reply to Sharples, so there can be no confusion at all as to what they have asserted. Now both the Principle of Equivalence and Special Relativity are defined in terms of the presence of multiple arbitrarily large finite masses and photons and so neither the Principle of Equivalence nor

Special Relativity can manifest in a spacetime that by construction contains no matter. But $Ric = 0$ is a spacetime that by construction contains no matter. Therefore neither the Principle of Equivalence nor Special Relativity can manifest in a spacetime that by construction contains no matter. Thus $Ric = 0$ is inadmissible on the very physical principles of General Relativity as laid down by Einstein and reiterated by his followers.

It is claimed that the singularity of a black hole is infinitely dense. But Special Relativity forbids infinite density, as a simple calculation shows, and given in my papers. Infinite density implies that masses can acquire the speed of light in vacuum, which violates the principles of Special Relativity. General Relativity cannot violate Special Relativity since Special Relativity must manifest in sufficiently small regions of Einstein's gravitational field. Therefore, General Relativity also forbids infinite density. Thus the infinitely dense point-mass singularity of a black hole is nonsense. Furthermore, there is not one shred of physical evidence to suggest that material objects can be infinitely dense. The concept of infinite density has no physical validity. Furthermore, point-mass singularities occur in Newtonian theory - they are called centres of mass. The centre of mass of a body is a mathematical artifice, not a physical object. One can go to a shop and buy a bag of marbles but one cannot go and buy a bag of centres of mass of those very same marbles.

According to the astrophysical scientists it takes an infinite amount of time for an observer to detect an event horizon. But nobody has been and nobody will ever be around for an infinite amount of time in order to confirm the presence of an event horizon. Consequently the concept has no validity in science. In addition, the aforementioned observer cannot be present in a spacetime that by construction contains no matter, assuming that observers are material. I do not see how an observer can be anything other than material.

Applying Doughty's expression for the acceleration of a point associated with Schwarzschild space it is immediately apparent that there is an infinite acceleration at $r = 2m$ of Hilbert's metric, where, according to the astrophysical scientists, there is no matter!

According to the astrophysical scientists, for $0 \leq r < 2m$ in

Hilbert's metric, the roles of r and t are exchanged, i.e. r becomes timelike and t becomes spacelike. Thus, all the components of the metric tensor become functions of the timelike quantity. This implies a non-static solution to a static problem, which is therefore nonsense too.

Concerning Einstein gravitational waves, none have been detected. This is also not surprising because the search for such waves is destined to detect none. Since $\text{Ric} = 0$ violates the physical principles of General Relativity Einstein's field equations form an identity with zero so that the total energy of the gravitational field is always zero; so that the Einstein tensor and the energy-momentum tensor must vanish identically; so that the localisation of gravitational energy is impossible; and so that the field equations violate the usual conservation of energy and momentum so well established by experiment. I wrote a paper on this which contains no mathematics:

www.sjcrothers.plasmaresources.com/GW.pdf

In order to save his theory from this catastrophe Einstein invented his pseudo-tensor. This pseudo-tensor is involved in the theory of Einstein gravitational waves, amongst other things. But Einstein's pseudo-tensor is a meaningless concoction of mathematical symbols because it implies, by contraction, the existence of a first-order intrinsic differential invariant, i.e. an invariant that depends solely upon the components of the metric tensor and their first derivatives. But the pure mathematicians G. Ricci-Curbastro and T. Levi-Civita proved in 1900 that such invariants do not exist! Consequently, by reductio ad absurdum, Einstein's pseudo-tensor is nonsense and hence all that depends upon it is also nonsense, including Einstein gravitational waves.

As for the observational evidence you refer to as proof of the validity of General Relativity it is putative at best. I deal with theoretical physics and so there are two factors to consider in relation to General Relativity in this regard: (1) mathematical consistency and (2) consistency with the physical principles of the theory. I have shown in my papers that there are fatal errors in mathematics and contradictions in physical principles. Therefore the theory fails. That an erroneous theory can seemingly account for various observed phenomena is not new to science. The Ptolemaic system of epicycles accounted for various celestial

phenomena but is nonetheless an erroneous theory. General Relativity is in the same boat. It is worthy of note that Professor B. Lavenda has shown that the usual tests of General Relativity can be accounted for without the use of General Relativity. His relevant paper is on the arXiv: 'Three Tests of General Relativity via Fermat's Principle and the Phase of Bessel Functions' (arXiv:math-ph/0310054 v1 25 Oct 2003).

You have not proven me wrong in your arXiv paper. Neither does your paper prove Abrams wrong, or Antoci wrong, nor Loinger wrong. I now give you a simple recipe to prove me wrong. Prove that matter can be present in a spacetime that by construction contains no matter, prove that Einstein's pseudo-tensor is not a meaningless concoction of mathematical symbols, and prove that r in Hilbert's metric is not the inverse square root of the Gaussian curvature of the spherically symmetric geodesic surface in the spatial section of the Hilbert manifold.

All of my papers on aspects of General Relativity are on my webpage:

www.sjcrothers.plasmareources.com/papers.html

Yours faithfully,
Stephen J. Crothers.

Mon, Nov 15, 2010

Dear Steve,

I am going to carefully read your reply to Sharples in next weeks. In any case, there are some points that I have to raise to your attention.

First, you have been incorrect with me as you sent, WITHOUT MY PERMISSION, our private correspondence to two lowest people like Mr. Dimi Chakalov and Mr. Diego Lucio Rapoport. Mr. Chakalov is a poor man who understand NOTHING about physics and mathematics. He contacted me in the past by trying to convince me that gravity-waves do not exist but I stopped to discuss with him when I realized that he does not understand the principle of overlapping waves, i.e. a principle that people learn during High School... More, Mr. Chakalov has been incorrect with

me too as he put WITHOUT MY PERMISSION, our private correspondence in his very stupid website where he writes and enormous number of idiocies, absurdities and nonsenses without any scientific foundation. On the other hand, Mr. Diego Lucio Rapoport is a scoundrel person. Some years ago, he has been flunked by the Editorial Board of the Hadronic Journal, and now he cannot stand that I am the Editor in Chief, a position which he was thinking to obtain but which he did not obtain based on his lowest incompetence. More, Mr. Diego Lucio Rapoport is false with you as he tells you that he is a rebel against the "mainstream" of the official physics while he is a running dog of people like Roger Penrose in his publications, see for example his latest paper published by Foundations of Physics... I want have NOTHING to do with lowest people like Mr. Dimi Chakalov and Mr. Diego Lucio Rapoport. In fact, I have blocked the emails of both of them in order to not read their rubbish.

Second, the key point is not that I do not understand the papers by you, by L. S. Abrams, by S. Antoci, and by A. Loinger, but, merely, that I DO NOT AGREE with such papers. Your starting point claims: "The so-called "Schwarzschild" solution is not due to Karl Schwarzschild at all. The experts have either not read Schwarzschild's 1916 memoir or have otherwise ignored it. Go here to get Schwarzschild's original paper, in English. The so-called "Schwarzschild" solution is due to David Hilbert, itself a corruption of a solution first derived by Johannes Droste in May 1916, whose paper has also been buried or ignored at the convenience of the experts. It appears that the experts have not read Hilbert either. Go here to get a copy of Hilbert's erroneous derivation, in English. Hilbert's mistake spawned the black hole and the community of theoretical physicists continues to elaborate on this falsehood, with a hostile shouting down of any and all voices challenging them. Schwarzschild's solution has no black hole, and neither does Droste's solution. Schwarzschild's paper is a piece of flawless mathematical physics, but Hilbert's is a poor show. And while you're at it you might as well go here to get a copy of Marcel Brillouin's 1923 paper, in English, in which he gives another valid solution and also simply and dramatically demonstrates that the black hole is nonsense. Brillouin's paper has also been ignored."

Our friend Jeremy Dunning Davies asked me to give a look on this point. Originally, I was "philosophically" in agreement with you. Unfortunately, by performing the computation, I realized that you should be wrong. In fact, I have shown in my latest paper <http://arxiv.org/abs/1010.6031> that the "the original Schwarzschild solution" results physically equivalent to the solution re-adapted by Hilbert, i.e. the solution that is universally known like "the standard Schwarzschild solution", and the authors like you, who claim that "the original Schwarzschild solution" implies the non existence of black holes give the wrong answer. The misunderstanding is due to an erroneous interpretation of the different coordinates. I further clarify this point. In my opinion, it is wrong also claiming that Hilbert's supposed mistake spawned the black hole. The concept of black-hole arises from the study of the INTERNAL geometry of the collapsing star, not from the EXTERNAL solutions like the ones of Schwarzschild, Hilbert, Brillouin etc. The key point is that, when you match the internal solution with the external solutions, ALL the geodesics of the collapsing matter look to fall in a single point in the core of the star. This happens in both of the cases of the original Schwarzschild line element and of the Hilbert's one. I have shown this point in my paper <http://arxiv.org/abs/1010.6031>. It is also simple to show that this key point remains when one matches ANY other EXTERNAL solution given by any other analytic function $R(r)$ without violation of spherical symmetry and without violation of $Ric = 0$ with the internal solution. Thus, the infinite number of analytic functions that satisfy $Ric = 0$ become, for this reason, i.e. for the collapsing of the matter in a single point in the core of the star in the internal solution, NOT infinite different solutions for the external geometry, but THE SAME solution in infinite different coordinate systems!! They describes the singular and EXTERNAL spacetime of a sole un-dimensional point where all the mass is collapsed. If one finds the way to avoid ALL the geodesics of the collapsing matter to fall in a single point in the INTERNAL, not in the EXTERNAL solution the matter does not arrive to the horizon and the black-hole does not form. On the other hand, you also claim that the quantity r that appears in the "Schwarzschild solution" is NOT a radius of anything in the associated manifold and that it is NOT even a distance in the associated manifold but that it is the inverse square root of the Gaussian curvature of the

spherically symmetric geodesic surface in the spatial section of the "Schwarzschild" manifold. Even admitting that you are right, in my opinion this point is NOT important. In fact, you can call this quantity like you prefer, but in any case he remains a coordinate for a 4-dimensional manifold, i.e. the spacetime, that we use to describe physics. The interpretation of coordinates is NOT univocally defined in General Relativity.

Third, you accused me to do not attempt to post your reply to Sharples to the arXiv archive as you requested me to try to do. Actually, I do not try to post your reply to Sharples to the arXiv archive because I DO not agree with you on the points that I discussed above, not because I want to deny your right of reply. Even if not peer-reviewed, the rules of arXiv archive tell that one can endorse the paper by an other author IF AND ONLY IF he agrees with the scientific contents of such a paper. As I DO not agree with the scientific contents of your reply, I do not endorse it with the arXiv archive. On the other hand, I have been informed on the motivation because Rabounski rejected such a reply in Progress of physics. Rabounski wants papers with an extent of not more than 8 pages, but you submitted a very long paper. Thus, again, you look to be wrong to think that there is a conspiracy against you, but, merely, it looks that you violated rules of Progress in Physics exactly like you ask me to violate the rules of arXiv archive.

Again Steve, I suggest you to change your way of proceed. I think that you are surely a talented researcher within gravitational physics, I agree with you that black-holes do not exist, but nobody will follow you if you insist to claim that not only the present community of gravitational physicists, but also the same Einstein, Schwarzschild, Hilbert, etc., i.e. the Founders Fathers of General Relativity, were wrong and the only correct person is Steve Crothers. In particular, be sure that I will NEVER follow you.

Cheers,
Ch.

P.S. Einstein's pseudo-tensor has nothing to do with gravitational waves.

Fri, Nov 19, 2010

Dear Dr. Corda,

Thanks for your email.

I do not think that I have been unfair to you by including a few interested colleagues in our correspondence. As I pointed out in my previous email, you have placed a paper on the arXiv archive, where I have no access whatsoever. Your paper can now be read by all and sundry without any right of reply from me, since I am excluded from the arXiv. You have failed to post to the arXiv my reply to Sharples. Because you disagree with me is no criterion for preventing my arguments being presented to readers of the arXiv. When I was an associate editor of Progress in Physics I supported publication of papers the content of which I disagreed with because I was of the view that all sides of argument must be made available to the scientific community: blocking papers because one disagrees with the arguments therein amounts to a form of censorship, to which I object. That you have disputes with Dr. Rapoport and Mr. Chakalov has nothing to do with our discourse. They too have the right to see all sides of argument and to form an opinion based upon the facts and the logic. I therefore request you once again to attempt to post my reply to Sharples to the arXiv website so that there is a fair and balanced presentation of arguments to the readers of that site.

You say that Rabounski rejected my reply to Sharples because it is too long. This is a deception by Rabounski because the editorial policy of Progress in Physics, of which Rabounski is the Editor-in-Chief, is to publish special reports and other important papers no matter what length. I know this owing to my former position on the Editorial Board of that journal and as a perusal of that journal's website also clearly reveals. I repeat that Rabounski denied me right of reply to Sharples, in contravention of academic procedure, in contravention of his own published Declaration of Academic Freedom - Scientific Human Rights (www.ptep-online.com/index_files/2006/PP-04-10.PDF), and in contravention of the general editorial policy of Progress in Physics. The real reason Rabounski rejected my paper is because my detailed reply to Sharples includes material that impinges adversely upon his own research in General Relativity and that of his colleague L. Borissova. I also

remark that Rabounski published a paper in which he acknowledged the validity of my proof that black holes are not predicted by Hilbert's metric or any other metric. Here is his paper:

D. Rabounski, On the Current Situation Concerning the Black Hole Problem, Progress in Physics, v.1, pp. 101-103, 2008,

www.ptep-online.com/index_files/2008/PP-12-18.PDF

I reiterate that I do not think that you have understood my papers. You too seem to think that I have advanced an infinite number of solutions to $\text{Ric} = 0$. That is not correct. I have advanced an infinite set of solutions that are equivalent. The general metric I have adduced contains the solutions by Schwarzschild, by Droste, by Brillouin, and the correct form of Hilbert's metric, amongst an infinitude of equivalent metrics. Nowhere in any of my papers have I ever asserted that the infinite number of particular solutions obtainable from my general metric are not equivalent. Sharples also levelled this false accusation at me, and then claimed that I am wrong. The fact is that Sharples misrepresented me on a number of issues and thereby constructed the proverbial straw men, which he then tore down in an attempt to refute me. That is not science - it is deception. The metric I have adduced in various of my papers is well defined for all values of r but one, which is arbitrary, and so is well-defined on the whole real line but for one arbitrary point. Furthermore, you claim that my identification of ' r ' in Hilbert's metric as the inverse square root of the Gaussian curvature of the spherically symmetric geodesic surface in the spatial section is not important. That is not true. The fact that Hilbert's ' r ' is not even a distance, let alone a radius, in the associated manifold, completely invalidates black hole theory. I point out that a particular value of Hilbert's ' r ' the relativists call the "Schwarzschild radius" of a black hole - the alleged radial distance from the infinitely dense point-mass singularity of a black hole to its event horizon. The event horizon is also claimed to be the boundary of a "Schwarzschild sphere". This is not correct because this ' r ' is not a radius or a distance in the associated manifold. Of itself it has nothing to do with radial distance in the associated manifold. Radial distance is determined by the form of the metric, which is spherically symmetric, and so the radial distance is given by an integral over the

component of the metric tensor containing dr in Hilbert's metric, not by mere assumption as to the range on this 'r'. I developed the relevant geometry from first principles in this paper, published in Progress in Physics:

www.ptep-online.com/index_files/2007/PP-09-14.PDF

It is apparent to me that you have not read this paper either.

In addition I have never claimed that I alone am right. That would be absurd. I have always acknowledged in my papers the writings of others, particularly those of Schwarzschild, Brillouin, Droste, and Abrams, as well as Antoci and Loinger. I have never hidden the fact that I have based my work upon the foundations set by Abrams. I have taken the analysis much further than Abrams, Antoci, and Loinger, and considered in detail the papers of the other aforementioned writers, amongst others. I have cited and quoted extensively from the literature so that there can be no contest as to what the relativists have claimed and asserted. I have done this considerably in my reply to Sharples so that I cannot be accused of not knowing what the relativists have argued.

I reiterate that there is not one iota of physical evidence that masses can be infinitely dense and that celestial bodies (or any bodies) can collapse into a point! The whole notion is wishful thinking based upon an absurd theory.

That you say that you will never follow me is disturbing to me, as it seems to indicate that you are not prepared to rightly consider my arguments but instead cling to the usual dogmas to various extents. This is not the way of science.

You say that Einstein's pseudo-tensor is not involved in his gravitational waves. I remark that this is not what the relativists assert, as they implicate it in Einstein gravitational wave theory. You will see from my reply to Sharples that this is the case as I quote extensively from the literature there. There is therefore no doubt as to what the relativists claim. Take for instance Dirac: in his book 'General Theory of Relativity', Princeton Landmarks in Physics Series, Princeton University Press, Princeton, New Jersey, 1996) he says -

It is not possible to obtain an expression for the energy of

the gravitational field satisfying both the conditions: (i) when added to other forms of energy the total energy is conserved, and (ii) the energy within a definite (three dimensional) region at a certain time is independent of the coordinate system. Thus, in general, gravitational energy cannot be localized. The best we can do is to use the pseudotensor, which satisfies condition (i) but not condition (ii). It gives us approximate information about gravitational energy, which in some special cases can be accurate."

Let us consider the energy of these waves. Owing to the pseudo-tensor not being a real tensor, we do not get, in general, a clear result independent of the coordinate system. But there is one special case in which we do get a clear result; namely, when the waves are all moving in the same direction."

Thus, there is no doubt whatsoever that Dirac relates Einstein's pseudo-tensor to the theory of Einstein gravitational waves. I have cited the literature accurately in my papers. But as I have said, Einstein's pseudo-tensor is a meaningless concoction of mathematical symbols and so everything based upon it is also nonsense. It is also worth emphasising here that the speed of propagation of Einstein's gravitational waves is coordinate dependent. That is not in keeping with the physical principles of General Relativity. Here is what the late British scientist Arthur S. Eddington pointed out in his book, 'The mathematical theory of relativity', Cambridge University Press, Cambridge, 2nd edition, 1960:

"The statement that in the relativity theory gravitational waves are propagated with the speed of light has, I believe, been based entirely upon the foregoing investigation; but it will be seen that it is only true in a very conventional sense. If coordinates are chosen so as to satisfy a certain condition which has no very clear geometrical importance, the speed is that of light; if the coordinates are slightly different the speed is altogether different from that of light. The result stands or falls by the choice of coordinates and, so far as can be judged, the coordinates here used were purposely introduced in order to obtain the simplification which results from representing the propagation as occurring with the speed of light. The argument thus

follows a vicious circle."

You advise that you will now study my reply to Sharples. After you have studied my reply to Sharples please do not omit addressing the matters I raised in my previous email, particularly the simple little recipe I gave you for proving me wrong.

Yours faithfully,
Steve Crothers.

Wed, Nov 24, 2010

Dear Steve,

regarding motivations because I do not endorse your paper in arXiv, I recall here what yesterday replied to Prof. Marian Apostol. In all honesty, one thing is claiming freedom in science, another think is permit the publication of wrong papers. As Editor in Chief and Handling Editor of various international peer reviewed journals I WILL NEVER PERMIT to publish papers that reviewers find to be wrong. Science must be peer-reviewed, the alternative is having published an enormous number of idiocies, absurdities and nonsenses. As I am sure that your papers that I cited in my paper arXiv:1010.6031 are wrong, I will never endorse them with arXiv. This has nothing to do with a form of censorship, but arises from the fact that science must be peer reviewed. More, citations of your paper are correctly referred and Prog. in Phys. is an open access journal thus, people who read my paper arXiv:1010.6031 can easily access to your works. On the other hand, there is a person who agrees with your point of views on Black-Holes, i.e., Mr. Diego Lucio Rapoport, who has access to arXiv because there are some stupid lowest papers by him within the archive, thus, you should ask him to be endorsed.

Concerning our scientific discussion, after carefully reading your considerations on gravitational waves and your your paper www.ptep-online.com/index_files/2007/PP-09-14.PDF I realized that you make an enormous confusion concerning Einstein's Equivalence Principle and the role of coordinates in General Relativity. Let us start with gravitational waves. I did not need your claims or the ones by Dirac in order to know that the stress-energy pseudo-tensor of the gravitational field is meaningless in a physical

sense. I well know this issue from, at least, 12 years, i.e. when I started to study General Relativity. The point is very very simple: the stress-energy pseudo-tensor of the gravitational field is physically meaningless or Einstein's Equivalence Principle that implies that the energy of the gravitational field CANNOT BE LOCALIZED as ONE can ALWAYS choose a coordinate system, i.e. the one of the free-falling observer, where the gravitational field is equal to zero, i.e. where the space-time is LOCALLY flat. But what you did not realize is that a gravitational wave IS NOT A LOCAL QUANTITY. A gravitational wave is A GLOBAL SOLUTION of both of the linearized and the full Einstein's Field Equations, i.e. it is A GLOBAL SPACETIME where test masses have a geodesic motion. Let us consider two different test particles free-falling in a spacetime of a gravitational wave. If we put the origin of our coordinate system in one of these test masses, call this the reference frame 1, we will see only the motion of the second test mass with associated an energy, say E_1 . On the other hand, if we put the origin of our coordinate system OUTSIDE the test masses, call this the reference frame 2, we will see A DIFFERENT ENERGY, say E_2 , associated at the motion of both of the masses. This is because in General Relativity, and in general, in all the metric theories of gravity, THE TOTAL ENERGY DOES NOT DEPENDS BY COORDINATES FOR EINSTEIN'S EQUIVALENCE PRINCIPLE, BUT THIS HAS NOTHING TO DO WITH THE EXISTENCE OR NON-EXISTENCE OF GRAVITATIONAL WAVES. You CANNOT invoke a Principle which is valid for LOCAL QUANTITIES to GLOBAL SOLUTIONS, THIS IS TOTALLY WRONG.

Concerning your paper www.ptep-online.com/index_files/2007/PP-09-14.PDF published in Prog. in Phys. the key point of your analysis is that the quantity called "gravitational radius", that you labelled with a , is not a sphere but a point. But you DID NOT DEMONSTRATE this point!!!! You only claims that "the true meaning of a , viz., a is a scalar invariant which fixes the spacetime for the point-mass from an infinite number of mathematically possible...." I DO NOT AGREE WITH THIS CLAIM, IN MY OPINION, IN A SPHERICAL SYMMETRY, AN INVARIANT WHICH FIXES THE SPACETIME FOR A MASS CAN BE A SPHERE TOO. On the other and, your also claim that " The standard treatment of the foregoing

line-element proceeds from simple inspection of (8) (i.e. the Hilbert metric) and thereby upon the following assumptions:

- (a) that there is only one radial quantity defined on (8);
- (b) that r can approach zero, even though the line-element (8) is singular at $r = 2m$;
- (c) that r is the radial quantity in (8) ($r = 2m$ is even routinely called the "Schwarzschild radius" [5]).

With these unstated assumptions, but assumptions none-theless, it is usual procedure to develop and treat of black holes. However, all three assumptions are demonstrably false at an elementary level."

I regret, but these claims ARE TOTALLY FALSE AND MISLEADING.

- a) Nobody claims that there is only one radial quantity defined on (8), see for example the book of Landau, where it clearly emphasized the difference between the proper radius and the radial coordinate r , and nobody claims that r is the proper radius;
- b) the line-element (8) is NOT singular at $r = 2m$, the singularity is due to coordinates and this point is also emphasized in the first original Schwarzschild's paper;
- c) "radial quantity" in (8) has to be intended in the general sense of arbitrary coordinates in General Relativity, not in the sense that r is the proper radius. The fact that Hilbert's ' r ' is not even a distance, let alone a radius, in the associated manifold, HAS NOTHING TO DO WITH black hole theory.

Black hole theory arises from the gravitational collapse of the INTERNAL geometry, while the Hilbert metric is an EXTERNAL solution. When you realizes the matching between the internal solution and the external one, you obtain the singularity at $r=0$, the core of the Black-Hole problem is here.

Again, I must emphasize that your insistence in misleading these points is favourable to Black-Holes proponents. Again, I invite you to change your way of proceed.

Another point to be clarified: when I refereed the fact that "nobody can believe that not only the present community of gravitational physicists, but also the same Einstein,

Schwarzschild, Hilbert, etc., i.e. the Founders Fathers of General Relativity, were wrong and the only correct person is Steve Crothers" I was not referring to the black hole theory, merely, I contested your claims on the fact that $R_{\mu\nu} = 0$, i.e. Einstein field equation in vacuum is wrong as it violates Einstein's Principle of Equivalence. This is pure madness!!! Actually, the derivation of $R_{\mu\nu} = 0$ was a FUNDAMENTAL INTERMEDIATED STEP that Einstein realized in order to obtain the final equations $R_{\mu\nu} = 8\pi T_{\mu\nu}$. IT HAS NOTHING TO DO WITH SUPPOSED VIOLATIONS OF EQUIVALENCE PRINCIPLE!!!! But the most fundamental point is another. In my opinion a correct theory is a theory which well match observations and experiments. $R_{\mu\nu} = 0$ achieves the light deflection, the gravitational delay, the gravitational redshift, the variation of time in GPS and the precession of Mercury's perihelion with an INCREDIBLE AND EXCEPTIONAL PRECISION even in its first order approach. If you claim that this theory is wrong, you must propose an alternative theory which guarantees such a matching with a better precision. It does not result that you realized such a theory...

Cheers,
Ch.

25th November 2010

Dear Dr. Corda,

First, your failure to endorse the posting of my reply to Sharples to the arXiv in my view constitutes censorship. It is you who has attempted to refute my arguments and so it is you I request to post my reply to Sharples to the arXiv. Suggesting that I approach others to do so is deflection of responsibility. Second, no thinking scientist can possibly accept the so-called "peer review" system as it currently stands because it is a blatant system of censorship, contrary to your plaintive cries, and so it is a farce. Furthermore, as I pointed out in my previous email, that you do not agree with me is not a criterion by which you can refuse posting of my paper. I reiterate that when I was an Associate Editor of Progress in Physics I supported the publication of many papers which I disagreed with because rejection of such papers would have amounted to censorship pure and simple. The peer-review process is to be rightly invoked by reading

of published papers, not by preventing the publication of papers in the first place. The former is scientific whereas the latter is not only unscientific but also dishonest and fraudulent. The papers of mine which you have cited are indeed now accessible to the public at large, but that is not the issue. The issue is the posting by you of my reply to Sharples to the arXiv, since its contents constitutes an effective reply to your arXiv paper. Your arXiv paper did not undergo the "peer review" process you champion. You simply posted it because you can. Your refusal to post my paper to the arXiv is unacceptable.

I note that you have failed to address most of the matters I raised in my previous emails. Also, you seem still not to have studied my reply to Sharples. You also claim, after reading my paper on non-Euclidean 3-dimensional spherically symmetric metric manifolds, i.e.

www.ptep-online.com/index_files/2007/PP-09-14.PDF

that I have not understood Einstein's Principle of Equivalence and the meaning of coordinates in General Relativity. I remark that my paper on non-Euclidean 3-dimensional spherically symmetric metric manifolds is pure mathematics and has nothing whatsoever to do with the physical principles of General Relativity. My analysis of 3-dimensional spherically symmetric metric manifolds is sound. I have developed it on the basis of a suggestion first advanced by Palatini and developed in detail by T. Levi-Civita. I refer you directly to the book 'The Absolute Differential Calculus' by T. Levi-Civita. The spatial section of Schwarzschild spacetime is a particular case of a non-Euclidean 3-dimensional spherically symmetric metric manifold and so it is subject to the pure mathematics developed in my paper, whether the relativists like it or not.

I remind you that in your previous email you incorrectly asserted that Einstein's pseudo-tensor has nothing to do with his gravitational waves. I indicated clearly that that is not what the relativists claim and I supplied you with a quotation, by way of example, from Dirac's book, refuting your assertion. You now say that Einstein's pseudo-tensor is physically meaningless. But it is physically meaningless because it is mathematically meaningless, as I previously pointed out. I reiterate that Einstein's pseudo-tensor is a meaningless concoction of mathematical symbols because it

implies the existence, by contraction, of an invariant that depends solely upon the components of the metric tensor and their first derivatives - but the pure mathematicians G. Ricci-Curbastro and T. Levi-Civita proved in 1900 that such invariants do not exist! Hence the pseudo-tensor and all that depends upon it, including Einstein gravitational waves, is also nonsense.

You now claim that I have not understood Einstein's Principle of Equivalence. I disagree. According to Einstein and his followers both his Principle of Equivalence and his Special Relativity must manifest in sufficiently small regions of his gravitational field and that these regions can be located anywhere in his gravitational field. But both the Principle of Equivalence and Special Relativity are defined in terms of the presence of multiple arbitrarily large finite masses and photons and so neither the Principle of Equivalence nor Special Relativity can manifest in a spacetime that by construction contains no matter. But $Ric = 0$ is, according to the relativists, a spacetime that by construction contains no matter. Here is what Einstein himself said in 1954, the year before his death, in his book 'The Meaning of Relativity':

"Let now K be an inertial system. Masses which are sufficiently far from each other and from other bodies are then, with respect to K , free from acceleration. We shall also refer these masses to a system of co-ordinates K' , uniformly accelerated with respect to K . Relatively to K' all the masses have equal and parallel accelerations; with respect to K' they behave just as if a gravitational field were present and K' were unaccelerated. Overlooking for the present the question as to the 'cause' of such a gravitational field, which will occupy us later, there is nothing to prevent our conceiving this gravitational field as real, that is, the conception that K' is 'at rest' and a gravitational field is present we may consider as equivalent to the conception that only K is an 'allowable' system of co-ordinates and no gravitational field is present. The assumption of the complete physical equivalence of the systems of coordinates, K and K' , we call the 'principle of equivalence'; this principle is evidently intimately connected with the law of the equality between the inert and the gravitational mass, and signifies an extension of the principle of relativity to co-ordinate systems which are

in non-uniform motion relatively to each other. In fact, through this conception we arrive at the unity of the nature of inertia and gravitation. For, according to our way of looking at it, the same masses may appear to be either under the action of inertia alone (with respect to K) or under the combined action of inertia and gravitation (with respect to K')."

Stated more exactly, there are finite regions, where, with respect to a suitably chosen space of reference, material particles move freely without acceleration, and in which the laws of special relativity, which have been developed above, hold with remarkable accuracy."

Clearly neither the Principle of Equivalence nor Special Relativity can manifest in a spacetime that by construction contains no matter. But $\text{Ric} = 0$ is a spacetime that by construction contains no matter. Since $\text{Ric} = 0$ violates the physical principles Einstein laid out above, it is inadmissible. The upshot of this is that Einstein's field equations must take the following form:

$$G_{\mu\nu}/k + T_{\mu\nu} = 0$$

wherein $G_{\mu\nu} = R_{\mu\nu} - \frac{1}{2} R g_{\mu\nu}$ is the Einstein tensor, $T_{\mu\nu}$ the energy-momentum tensor, and k a constant. The $G_{\mu\nu}/k$ are the components of a gravitational energy tensor. Thus the total energy of Einstein's gravitational field is always zero with the result that the Einstein tensor and the energy-momentum tensor must vanish identically; that it is impossible to localise gravitational energy (i.e. there are no Einstein gravitational waves); and that the usual conservation of energy is violated, which places the field equations in direct conflict with experiment, despite the putative tests of the validity of General Relativity. To escape this catastrophe Einstein invented his pseudo-tensor. But when one contracts Einstein's pseudo-tensor it results in a first-order intrinsic differential invariant, that is, an invariant that depends solely upon the components of the metric tensor and their first-derivatives. But the pure mathematicians G. Ricci-Curbastro and T. Levi-Civita proved in 1900 that such invariants do not exist. Consequently, by reductio ad absurdum, Einstein's pseudo-tensor is a meaningless concoction of mathematical symbols. It immediately follows that all that depends on the validity of the pseudo-tensor is also utter nonsense. I note that you

repeatedly and incorrectly write the Einstein field equations as $R_{\mu\nu} = 8\pi T_{\mu\nu}$.

You invoke "test" particles but do not define them. I remark that if a "test particle" is material it can acquire an arbitrarily large but finite mass by virtue of its motion in the "gravitational field". If it is immaterial then it has no meaning.

Landau and Lifshitz, in their book 'The Classical Theory of Fields', actually state that there are two radial quantities in "Schwarzschild spacetime" and assert that the choice of radius is therefore arbitrary. That is demonstrably false, as I have shown in my papers. Landau and Lifshitz, like all relativists, are unaware that the 'r' in Hilbert's metric by itself has nothing at all to do with distance in the associated manifold. It is irrefutably the inverse square root of the Gaussian curvature of the spherically symmetric geodesic surface in the spatial section - the proof given in several of my papers. The fact remains that when the proper radius is zero the Gaussian curvature is finite, not infinite as in Euclidean space. As Brillouin pointed out in 1923, there is nothing more "point like" in Schwarzschild spacetime. Relativists routinely assert without proof that singularities are physical and must occur where certain curvature invariants are unbounded. These notions are false, as shown in my papers. Singularities occur in Newton's theory - they are called centres of mass. They are not physical and constitute mathematical artifice. One can buy a bag full of marbles but one cannot buy a bag of centres of mass of those marbles. In the case of Newton's theory at the centre of mass the Gaussian curvature is unbounded, owing to the Euclidean nature of the geometry. This is not the case in Schwarzschild space.

You say that nobody claims that 'r' in Hilbert's metric is the proper radius. That is false, as even a cursory reading of any textbook on General Relativity attests. I reiterate that a particular value of this 'r' is called the Schwarzschild radius of a black hole, which is claimed to be the distance from the infinitely dense point-mass singularity at the centre of a black hole to the event horizon of that black hole. In other words it is claimed by the relativists that the "Schwarzschild radius" is the radius of a black hole, which is their proper radius by another name. Well, the fact is that it is not the

radius of the black hole because it is not even a distance let alone a radial one in Hilbert's metric. That this 'r' is not a distance in the associated manifold has everything to do with black hole theory since black hole theory relies upon this 'r' as being treated as radial distance from the infinitely dense point-mass singularity of a black hole. I also reiterate that infinite density is forbidden by the Theory of Relativity. Moreover, there is not one iota of physical evidence to suggest that material bodies can be infinitely dense. Furthermore, there is not one iota of physical evidence to suggest that gravitation exists in the absence of multiple bodies.

Contrary to your assertion the Hilbert metric is singular at $r = 2m$, precisely where the proper radius is zero. The result is that when the proper radius is zero the associated Gaussian curvature is finite, owing to the non-Euclidean nature of Schwarzschild spacetime. I refer you back to my previous email for details. You seem to have disregarded the arguments I adduced there.

Like the relativists you play on the words "external solution" and "outside a body" when talking about the Hilbert metric. Let us consider this further. I remark that according to Einstein and his followers, Einstein's field equations couple the gravitational field to its sources. When one asks the relativists what is the source of the gravitational field in the so-called "Schwarzschild solution" one is told that it is the mass in the said expression. If the field equations couple the gravitational field to its sources then one cannot remove all sources by setting the energy-momentum tensor to zero since it is this tensor that accounts for the source. The resulting expression, i.e. $\text{Ric} = 0$, therefore contains NO sources! $\text{Ric} = 0$ (i.e. $T_{\mu\nu} = 0$) must describe a totally empty universe. Indeed, in the de Sitter universe, which is alleged by the relativists to be a totally empty universe, $T_{\mu\nu} = 0$. By setting $T_{\mu\nu} = 0$ one cannot describe both a universe that contains one mass and a universe that is totally empty. Thus, $\text{Ric} = 0$ is inadmissible. Furthermore, the "mass" is introduced post hoc into Hilbert's metric by means of Newton's a priori two-body relations, be it as the square of his escape velocity or his potential function. In addition one cannot simply stick other masses willy-nilly into Schwarzschild spacetime because the Principle of Superposition does not apply in General Relativity. One can

stick in as many masses as one pleases into Newton's space because the Principle of Superposition applies. This is because Einstein's theory is a non-linear theory whereas Newton's is not.

I reiterate that if you consider Hilbert's metric in terms of c and G explicitly you will immediately see that the square of Newton's expression for escape velocity is present in two components of the metric tensor. This is usually disguised by the relativists who set $c = 1$ and $G = 1$ (G being Newton's gravitational constant). It is my view that the post hoc introduction of Newton's expression for escape velocity is invalid. After all, the so-called "Schwarzschild solution" due to Hilbert is alleged to be a solution for a universe that contains one mass by construction. Escape velocity involves two bodies - one escapes from the other. That one mass appears in Newton's expression for escape velocity does not imply that the situation is not an a priori two-body system. Newton's expression for gravitation is defined in terms of two masses and one cannot determine his escape velocity without recourse to two bodies in one way or another. Furthermore, an expression that relates to the interaction of two bodies cannot possibly appear in an expression that is alleged to contain only one body (a one-body universe by construction). By setting $c = 1$ and $G = 1$ the relativists fail to see that Hilbert's metric contains the square of Newton's expression for escape velocity which is dependent upon an a priori two-body configuration. Moreover, by setting of $c = 1$ and $G = 1$ the relativists assert that Newton's expression for potential appears. This is just as deceptive. Newton's expression for gravitational potential is defined as the work done per unit mass against the gravitational force in moving one body towards another body from infinity to some radial distance r from the latter. Note that this definition also involves Newton's two-body relation for gravitation. It does not matter that one mass appears in the final expression for potential because this cannot be obtained without recourse to Newton's two-body relation for gravitational force. Furthermore, the Newtonian potential can only be realised as a gravitational interaction by the introduction of another body. This cannot be done for an expression that is alleged to pertain to a universe that contains only one mass, i.e. Hilbert's metric, neither physically nor conceptually. I reiterate that an implicit two-body relation from Newton's theory cannot rightly appear in a non-Newtonian expression

that relates to a universe that contains only one mass.

It is also worth noting that by writing Hilbert's metric explicitly in terms of c and G the relativists claim on the one hand that the escape velocity of a black hole is c . They then assert that the corresponding "radius" is that of the event horizon of a black hole, centred on an infinitely dense point-mass singularity. But if this is true then light can escape because light travels at the escape velocity and so all observers can see the source of the gravitational field. Furthermore, ponderable bodies could leave it but not escape so that there is always a class of observers that can see these ponderable bodies leave and fall back. Now on the other hand the relativists also claim that neither light nor ponderable bodies can even leave the event horizon of a black hole, so that there is no class of observers than can see the black hole. But escape velocity does not mean that things cannot leave, only that they cannot escape. Black holes, if they cannot be seen by any observer whatsoever, have no escape velocity. The "escape velocity" of a black hole is also a play on words, to wit, "escape velocity". Now observers must be material and so they cannot appear in a universe that is alleged to contain only one mass, but which is a universe that actually contains no mass by construction. I point out that the term 'r' in Newton's relations denotes an actual radial distance, but in "Schwarzschild" space it is not even a distance let alone a radius of anything.

I also remark that the transition to Schwarzschild spacetime involves a transformation from Minkowski spacetime, not from Special Relativity. Minkowski spacetime does not require the presence of matter whereas Special Relativity does. When one transforms from Minkowski spacetime to Schwarzschild spacetime via $Ric = 0$ there are no terms that contain matter, since the energy-momentum tensor is set to zero at the outset. The resulting equations give the components of the metric tensor in terms of the other components of the metric tensor, none of which contain a matter term. The components of the metric tensor can be further reduced to functions of just one component of the metric tensor, which contains no matter term. This is a problem for the relativists because they assert at the outset that a mass is present and that $Ric = 0$ describes the field "outside" this mass (where the space is empty). But the field "outside" this mass is also alleged to be caused by the same

mass acting as the source of the gravitational field outside the mass and so must be described by a non-zero energy-momentum tensor, since the field equations are claimed to couple the gravitational field to its sources. One cannot have a source ($T_{\mu\nu} \neq 0$) and at the same time not have a source ($T_{\mu\nu} = 0$). So the relativists remove all matter by setting $T_{\mu\nu} = 0$ and then immediately reintroduce it with the words "outside a body". To escape this dilemma the relativists insert post hoc Newton's two body relation for escape velocity (c and G appearing explicitly), or his potential function (deceptively by setting $c = 1$ and $G = 1$). The mass alleged to cause the "Schwarzschild" gravitational field, with its black hole, involves a play on the words, "outside a body".

It is worth noting once again that by writing Hilbert's metric explicitly in terms of c and G the relativists claim on the one hand that the escape velocity of a black hole is c . They then assert that the corresponding "radius" is that of the event horizon of a black hole, centred on an infinitely dense point-mass singularity. But if this is true then light can escape because light travels at the escape velocity and so all observers can see the source of the gravitational field. Furthermore, ponderable bodies could leave it but not escape so that there is always a class of observers that can see these ponderable bodies leave and fall back. Now on the other hand the relativists also claim that neither light nor ponderable bodies can even leave the event horizon of a black hole, so that there is no class of observers than can see the black hole. But escape velocity does not mean that things cannot leave, only that they cannot escape. Black holes, if they cannot be seen by any observer whatsoever, have no escape velocity. The "escape velocity" of a black hole is also a play on words, to wit, "escape velocity". Now observers must be material and so they cannot appear in a universe that is alleged to contain only one mass, but which is a universe that actually contains no mass by construction. I point out that the term 'r' in Newton's relations denotes an actual radial distance, but in "Schwarzschild" space it is not even a distance let alone a radius of anything. The irrefutable geometric fact is that 'r' in Hilbert's metric is the inverse square root of the Gaussian curvature of the spherically symmetric geodesic surface in the spatial section and thereby of itself has nothing to do with distance in the related manifold. All radial distance in "Schwarzschild

spacetime" are determined via an integral over the component of the metric tensor containing dr therein. Thus, the "Schwarzschild radius" is not the radius of anything in "Schwarzschild" space.

Contrary to your claims I have in fact shown that $r = 2m$ (or α in most of my papers) of Hilbert's metric constitutes a point - it is a point in a parametric space that corresponds to a proper radius of zero (a point) in the manifold associated with Hilbert's metric. I refer you again to my reply to Sharples for a very detailed analysis of this issue. I reiterate that I have adduced a metric in several of my papers that is well-defined for all values of 'r' but one, that one point being completely arbitrary.

You refer to gravitational collapse, but this too I have dealt with in my reply to Sharples. I show there that Oppenheimer and Synder incorrectly applied the Principle of Superposition and obtain a non-Newtonian universe by beginning with a Newtonian universe, and so that their argument is fallacious. In fact, all of the matters I have addressed in this email are treated in detail in my reply to Sharples. Several of my other published papers also treat of the above matters. I refer you once again to my reply to Sharples and to my previous emails.

As I mentioned in my previous email, the "tests" of General Relativity are putative, in similar fashion of the Ptolemaic system. Furthermore, most of the "tests" of General Relativity can be accounted for without General Relativity. I refer you for instance to the paper by Prof. B. H. Lavenda:

['Three Tests of General Relativity via Fermats Principle and the Phase of Bessel Functions'](#), arXiv:math-ph/0310054 v1
25 Oct 2003

and the paper by J. Hynccek

['A note on the incorrect derivation of light deflection by a gravitating body in general relativity theory'](#), PHYSICS ESSAYS 23, 4, 2010.

I remind you that in my previous email I pointed out that the speed of propagation of Einstein's gravitational waves is coordinate dependent and that the choice of coordinates has been deliberately made ad hoc to ensure a speed of

propagation at c . The argument involves, as Eddington pointed out, a vicious circle and so it is false.

You continue to falsely insist that I claim that I alone am right. The fact is, and I have mentioned this many times in my papers, that my work is founded upon that of Dr. L. S. Abrams, Prof. A. Loinger, Prof. S. Antoci, K. Schwarzschild, J. Droste, M. Brillouin, T. Levi-Civita, and others. These authors are correct - black holes and Einstein gravitational waves are nonsense. In relation to black holes I extend the work of Abrams in particular. I have taken matters further and argue that Einstein's field equations are physically meaningless because they violate the usual conservation of energy and are therefore in conflict with experiment on a very deep level. I therefore regard General Relativity as moribund, ready for relegation to the dustbin of scientific history.

You also falsely assert that if General Relativity is wrong I must advance a new theory in its place. I do not have to invent any new theory at all. It is valid scientific work to show that General Relativity is fallacious. Just because I show how and why General Relativity is inadmissible owing to internal contradictions in physical principles and incorrect mathematics, does not mean I have to present to the world a new theory. By setting such a condition you impose a violation of scientific method. As a scientist I have the right, as do all scientists, to show where there is error in the accepted dogmas. That does not make it incumbent upon me to come up with some other theory. I am not in the business of inventing theories and never have been so engaged. I will not be silenced by obscurantists and dogmatists who don't like what I have to say. And the fact remains that nobody has ever found an infinitely dense point-mass singularity and nobody has ever found an event horizon and so nobody has ever found a black hole, despite the claims of the astrophysical scientists that they have found black holes all over the place, in violation of the Principle of Superposition to boot! Similarly, nobody has ever detected Einstein gravitational waves. This is not surprising because the search for black holes, Einstein gravitational waves, and the afterglow of a Big Bang, are destined to detect nothing. In the case of the latter see my published paper 'COBE and WMAP: Signal Analysis by Fact or Fiction?' (Electronics World, 2010),

www.sjcrothers.plasmareources.com/COBEwmap-3.pdf

Obscene amounts of taxpayers' money have been wasted on these "research projects". Such money has ensured the continued employment of pseudo-scientists on grand wages and retirement funds, but will render nothing of value to science. It is high time that these frauds were exposed, and exposed they shall be. The ESA Planck satellite is no better. The COBE, WMAP and Planck satellites are just very expensive space junk. See the following papers in this regard:

Robitaille P.-M.

WMAP: A Radiological Analysis

http://www.ptep-online.com/index_files/2007/PP-08-01.PDF

Robitaille P.-M.

COBE: A Radiological Analysis

http://www.ptep-online.com/index_files/2009/PP-19-03.PDF

Robitaille P.-M.

Calibration of Microwave Reference Blackbodies and Targets for Use in Satellite Observations: An Analysis of Errors in Theoretical Outlooks and Testing Procedures

http://www.ptep-online.com/index_files/2010/PP-22-01.PDF

Robitaille P.-M.

The Planck Satellite LFI and the Microwave Background: Importance of the 4K Reference Targets

http://www.ptep-online.com/index_files/2010/PP-22-02.PDF

Yours faithfully,

Steve Crothers.

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