

Glenn A. Baxter, P.E., Editor



Glenn A. Baxter, P.E., Physicist, Licensed Professional Engineer

PHYSICS UNIVERSITY www.k1man.com/physicsuniversity

BELGRADE LAKES INSTITUTE FOR ADVANCED RESEARCH www.k1man.com

EDITORIAL

Dr. D. Sasso of Italy has just filed a new paper: [On Basic Physical Properties of Baryon Matter According To The Non-Standard Model](#). See www.k1man.com/a20.pdf

Regarding underlying scientific thinking, Dr. Sasso writes: "... (Dr.) Einstein's Special Relativity is obsolete because Lorentz's kinematic transformations on space-time are wrong..." See

www.k1man.com/f58.pdf Dr. Sasso then explores electromagnetic theory in the paper: [The Maxwell Equations, The Lorentz Field and The Electromagnetic Nanofield To The Qxquestion of Relativity](#) See www.k1man.com/a17 Accordingly, we now further focus on the

problems of different approaches to the Lorentz transformation and a current suggestion by Dr. Al McDowell that we look at 21st Century physics with Special Relativity totally removed. We must therefore look further into an explanation of unipolar induction. See Harry Ricker's (MSEE, UNH) as well as Mueller's papers on unipolar induction: www.k1man.com/RickerUnipolar1.pdf http://www.marmet.org/louis/induction_faraday/mueller/muller.htm Antonio Saraiva and Martin Plaun join us this edition with papers in disagreement with Special Relativity, and Roger Anderton disputes General Relativity. J. C. Edwards proves Fermat's last theorem.

PAPERS

THE (DR.) EINSTEIN'S RELATIVITY IS WRONG by Antonio Saraiva

www.k1man.com/Saraiva130218A.mp3

DISPROOF OF THE SPECIAL THEORY OF RELATIVITY by Martin Plaun

www.k1man.com/Plaun130228A.mp3

NOT SO FAST, DR. EINSTEIN, by Glenn A. Baxter, P.E.* www.k1man.com/c1 (Updated – 27 February 2013 3:58 P.M.)

SPECIAL RELATIVITY MATH DISPROOF ON ONE PAGE – by Glenn A. Baxter, P.E.

www.k1man.com/c12 (updated 27 February 2013)

Newtonian Gravitational Deflection – by Roger Anderton

I now have a very simple calculation for the bending of starlight by Newtonian gravity that gives same value as general relativity at-

<http://gsjournal.net/Science-Journals/Research%20Papers-Relativity%20Theory/Download/4528>

I explain that in the calculation they did in context of Newtonian physics - they missed out the "2".

What you get is a Pythagorean triangle- in the x direction there is distance for light travelling at c multiplied by some time interval t/2 and this is falling at gravitational acceleration g, so this distance is gt^2 . The angle of deflection is $\alpha = gt^2/(ct/2) = 2gt/c$ with $t = 2R/c$ and $g = GM/R^2$ so subst this in gives $2gt/c = (GM/R^2)(2R/c)(2/c) = 4GM/(Rc^2)$ which is the same as general relativity, what mainstream did in this calculation was forget the "2", they have a distance 2R along the x direction so should have $2R = ct$, then the triangle they form is using half this distance namely $ct/2$.

Thus no revolution in 1919, just a mistake in the maths.

And Einstein as many realize was bad at maths.

He is awarded as being the greatest physicist ever, as consequence of being bad at maths and making mistakes like this. End.

THE TROUBLE WITH MAXWELL'S ELECTROMAGNETIC THEORY: CAN FIELDS INDUCE OTHER FIELDS IN A VACUUM? - By Ionel Dinu www.k1man.com/Dinu130301A.pdf

A SIMPLE PROOF OF FERMAT'S LAST THEOREM - by - J. C. Edwards

www.k1man.com/Fermat130301A.pdf

"PROOF" OF RELATIVITY? NASA

<http://www.network54.com/Forum/304711/message/1362129425/Einstein%E2%80%99s+Theory+of+Relativity+Proven+By+NASA%E2%80%99s+Nustar+%26amp%3B+ESA%E2%80%99s+XMM-Newton>

EVIDENCE AGAINST EMISSION THEORY OF LIGHT (Tolman 1917)

<http://www.network54.com/Forum/304711/message/1361949321/Evidence+Against+Emission+Theories+of+Light.+%28Tolman+1917%29>

2013 PHYSICS COLLOQUIUM IN PORTLAND, MAINE -17 August 2013

We are now calling for papers and inviting speakers for the 17 August 2013 Physics Colloquium, to be held in Portland, Maine. The themes for the 2013 Colloquium will be the so called Higgs Boson and/or what happens if you remove Special Relativity from an existing peer reviewed published paper or papers. The 2012 Colloquium focused on the effect of Special Relativity on Electromagnetic Theory as described by Maxwell's equations. See www.k1man.com/a17 and www.k1man.com/c17 The 13 August 2011 Physics Colloquium scheduled in Portland, Maine focused on the effect of the non constant nature of the speed of light on 21st century physics.

Accepted papers for presentation at the 2013 colloquium (deadline is 15 July 2013) will be distributed to all registered attendees before the colloquium so they can be studied and even discussed, which will greatly improve the effectiveness and efficiency of the colloquium itself. Attendees are cordially invited to dinner in Portland on Friday evening, August 16, 2013 at 7:00 p.m. to informally meet and to also discuss physics. Please register for the colloquium (free) and/or the dinner (off the menu) by sending an E-mail to Institute@K1MAN.com www.k1man.com

We submit this Scientific Journal each month to www.viXra.org.

LETTERS

From: Daniele Sasso <dgsasso@alice.it>

Sent: Mon, Feb 25, 2013 9:28 am

Subject: Re: Dr. Calarco

Glenn,

The experimental program by the Department of Physics of the University of New Hampshire is very interesting. I am basically a theoretical researcher and I have my convictions about main aspects of Present-day Theoretical Physics. Particularly the concept of "heavy photon" could have many points in common with my studies about radiations at very high frequency.

If truly Dr. Calarco considers my papers are interesting I will be gratified to argue with him.

Daniele Sasso
Doctor of Engineering
Independent Researcher
e_mail: dgsasso@alice.it

(All Sasso papers at www.klman.com/k)

From: Jeffrey Cook <jnoelcook@yahoo.com>
Sent: Sun, Feb 24, 2013 5:42 pm
Subject: Re: Hydrodynamic wakes and the RH

Here're a couple links on how the Cornu spiral connects with light interference

[Richard Feynman](#)^[4] said that "no-one has ever been able to define the difference between [interference](#) and diffraction satisfactorily. It is just a question of usage, and there is no specific, important physical difference between them."

http://en.wikipedia.org/wiki/Fresnel_diffraction

Jeff

From: Bill Lucas <bill.lucas001@gmail.com>
To: HARRY RICKER <kc3mx@yahoo.com>
Subject: Re: Comments On Saturday NPA Presentation

Harry,

I am sorry that you missed the point of most of my presentation. I tried to show historically where mainstream science went astray philosophically and stopped looking for truth. Mainstream scientists would be very upset at my presentation, because I explain why and how they are no longer looking for truth. I point out that mainstream science has lost its way. I showed under which philosophies of science various theories of modern science were formulated and what the general weaknesses of those philosophies are.

The various philosophies Axiomatic, Empirical, Existential, Structural and Post-Modern were taught in my philosophy of science courses at the College of William and Mary in 1964. My instructor got his training at Harvard University. These philosophies are identified and somewhat explained on the internet. See

<http://en.wikipedia.org/wiki/Structuralism>

http://en.wikipedia.org/wiki/Nicolas_Bourbaki

http://en.wikipedia.org/wiki/Postmodern_philosophy

<http://en.wikipedia.org/wiki/Existentialism>

As an undergraduate I studied the Philosophy of Science and graduated with Honors in that field, even though my major was Physics. Some of the recent significant books on Structuralism and Post-Modernism that I have studied are

1. Aczel, Amir D., **The Artist and the Mathematician**(Thunder's Mouth Press, New York, 2006).
2. Mashaal, Maurice, **Bourbaki: A Secret Society of Mathematicians**(American Mathematical Society, 2006).
3. Sturrock, John, **Structuralism – Second Edition**(Blackwell Publishing, London, 2003).
4. Jakobson, Roman,**Essays on General Linguistics**, (University of Indiana Press, Bloomington, 1952).
5. Oulipo, **La littérature potentielle**(Gallimard, Paris, 1973).
6. Lacan, Jacques, **The Seminar, Book IV "La relation d'objet"** (W.W. Norton& Co., New York, 1993).
7. Lévi-Strauss, Claude, **Elementary Structures of Kinship**(Les Structures Élémentaires del la Parenté). (Mouton, The Hague, 1947)
8. Lévi-Strauss, Claude, **Anthropologie structural**(Plon, Paris, 1958).

9. Leontief, Wassily, et al., *Studies in the Structure of the American Economy: Theoretical and Empirical Explorations in Input-Output Analysis* (Oxford University Press, New York, 1953).
10. Jean-Francois Lyotard, extracts from **The Postmodern Condition: a Report on Knowledge** (University of Minnesota Press, 1979).
11. Andrew Ross, editor, **Science Wars**, (Duck University Press, 1996).

The Bourbaki were the primary promoters of the Structural Philosophy in nearly all fields.

One of the points that I made is that the NPA does not have defined statements about the various philosophies of science and truth. I think that there should be ongoing conversations about this in the NPA. And that we should ask various speakers to explain what philosophy of science they are following in their work according to NPA definitions.

If you would like me to join your conversation about the presentation tomorrow at 10:30 AM, please send instructions.

Best regards,
Bill

On Sun, Feb 10, 2013 at 2:12 PM, HARRY RICKER <kc3mx@yahoo.com> wrote:

Bill,

I am sending these remarks regarding your presentation. I am including members of our roundtable discussion group since we usually discuss the saturday presentations on the following monday morning in our roundtable discussion conference call.

My first comment is that I thought this presentation very good for a mainstream audience, but I was not at all sure that for dissidents this was a convincing presentation. In the first place I dont like lecture style presentations. I like to discuss ideas. NPA should discuss more and lecture less.

I did not think that the way you defined philosophy of science was really using that idea properly. Perhaps for a mainstream audience it was. I think NPA should be directed towards taking issue with the accepted paradigms, and philosophy of science is a mainstream paradigm. That is why I think we should not use this terminology because it is something that mainstream defines within their own thought context.

Having said that, I didn't understand what the existential philosophy of science meant and I understood less what structural philosophy of science meant. Now since I have studied philosophy a lot I would have understood if I had seen this discussed in detail, but I have not. I think these things were defined by you, but I am not sure that they rang true to me. My recommendation is that you spend more time talking about what exactly you mean by structural philosophy and less about the others. I understood your purpose, but it didn't convince me. Sorry about that. I just was lost in the vagueness of the ideas.

I think what you were saying is this. The Greeks developed idealism, and that says something like the natural world is a reflection of the ideas in the mind of GOD. So the world is basically a materialization of pure idea. So therefore pure logic and math which is developed in the mind of man is a reflection of the pure idea of GOD. Hence GODS perfection is reflected in our minds though the purity of logic and math. So if we discover the best logic and math we have discovered the world as it is. That idea became modified by empiricism where it is still maintained that the world is mathematical but one needs empirically deduced or inductive knowledge to build the deductive structure. Newton should not be referenced as you talked about his philosophy which was adopted by his followers. This is what became physics. That is the combination of inductive method with the idea that the world is the reflection of an idea in the mind of GOD and since GOD is a mathematician, then the world is mathematical. So physical laws are embodied in mathematics.

Now correct me if I am wrong but you seem to be saying that the world is a reflection of something called a structure. That is instead of GOD being a mathematician, you say GOD is a structuralist. But I don't know what that means. Your presentation did not help me to see why a structural philosophy is any better than the old Newtonian one. I agree that the modern approach is not a philosophy worth considering, because it isn't really a philosophy regarding nature, it is simply a philosophy which justifies the current way mainstream science is being done.

I also needed to have some stronger reasons why I should think that you structural theory of electromagnetism is worth reading about. I did not hear that it solved the unipolar induction problem which is a particular failure in the current theories. So I would have liked to have heard more about what experimental evidence supports your viewpoint.

To repeat, if I was mainstream I would have been very impressed. But being a dissident, I don't need to be told why mainstream science needs to be fixed. What I would like to know is what are the fruitful ways we can proceed to fix the problems we already acknowledge. Of course mainstream says there are no problems at all. I see your dilemma. But again I felt this was something for a mainstream audience not a dissident one.

Harry

PS If you would like to join us tomorrow at 10:30AM contact Glenn Baxter.

Dr. Bill Lucas joins our physics conference call this week. We discuss Dr. Lucas' NPA video conference presentation on 10 February 2013: https://www.fuzemeeting.com/replay_meeting/fccff073/3450307www.k1man.com/Conf130211.mp3

PARTICIPANTS WERE:

Harry H. Ricker, BSEE, Virginia Tech, MSEE, UNH; Glenn A. Baxter, P.E., BSIE URI; Nick Percival, **BS Physics, Harvard**; **Dr. Al McDowell, BSEE, Syracuse, PhD., Cornell**; **Dr. Satya Pal Asija, P.E.,** B.Sc., S.D.College/Punjab University, Graduate Institute of Electronic & Radio Engineers. (London), MBA University of Dayton, Post Graduate Diploma, University of Wales, Cardiff, UK,, Doctor of Jurisprudence NKU/Salmon P. Chase; Dr. Charles William Lucas, Doctorate in Intermediate Energy Physics from The College of William and Mary, post - doctotate research on pions at Catholic University.

Fifty two minute plus a one hour thirty four minute discussion regarding Dr. Lucas' NPA video conference presentation on 10 February 2013:

https://www.fuzemeeting.com/replay_meeting/fccff073/3450307,

www.k1man.com/Ricker130209.mp3, www.k1man.com/Ricker130211.mp3 plus a broad range of physics topics including the current and ongoing Dissident "scientific revolution:"

PARTICIPANTS WERE:

Harry H. Ricker, BSEE, Virginia Tech, MSEE, UNH; Glenn A. Baxter, P.E., BSIE URI

From: Al McDowell <almcd999@earthlink.net>

Sent: Thu, Feb 7, 2013 3:01 pm

Subject: Van Flandern Big Bang List

Harry et al.,

Van Flandern's list of the top 30 problems with the Big Bang problems is at

<http://metaresearch.org/cosmology/BB-top-30.asp>.

Al

From: "rlkemp@aol.com" <rlkemp@aol.com>

Sent: Saturday, February 23, 2013 7:06 PM

Subject: Re: Hydrodynamic wakes and the RH

Dr. Kiehn,

FYI Look up chapter 9 in Vol 3 for evidence of such topological defects in fluids:

<http://www22.pair.com/csdcdownload/ebookvol3.pdf>

There are a lot of very interesting things in that paper!

You are the man!

R.Kemp

From: RKiehn2352 <RKiehn2352@aol.com>
To: jnoelcook <jnoelcook@yahoo.com>
Sent: Sat, Feb 23, 2013 2:03 pm

Subject: Hydrodynamic wakes and the RH

FYI Look up chapter 9 in Vol 3 for evidence of such topological defects in fluids:

<http://www22.pair.com/csdc/download/ebookvol3.pdf>

Note that the Mushroom Spiral is due to the Rayleigh-Taylor instability and the Cornu Spiral is due to the Kelvin-Helmholtz instability. The instabilities are due to shock C0 discontinuities and tangential C1 discontinuities. See Landau and Lifshitz These characteristic solutions to the wave equation are not sinusoids. I suspect that both shapes (as conjugate topological defects) must be involved, somehow, with the RH.

Note that both discontinuities generate complex conjugate pairs of minimal surfaces. In <http://www22.pair.com/csdc/download/ebookvol2.pdf>; see the movies (and properties) of the Falaco Solitons.

Regards
Prof. RMK

Van: HARRY RICKER [<mailto:kc3mx@yahoo.com>]

Bart,

Thanks for providing this and getting in touch with me. I am aware of the issue that you discuss in your mail. The issue for me is how do you show that the claims of SR that the so called time dilation is not and can not be a function of relative velocity. I think that my papers demonstrate this conclusively. You are right to be thinking about what the physical model really is. This has been a topic of discussion in our little group. There are various ideas. I don't have a particular one. Ron Hatch has been using GPS clock data to develop his own ideas. I think perhaps this is something that we need to investigate some more. So I would like to invite you to discuss this idea with our little discussion group.

Harry

--- On **Fri, 2/15/13**, **Bart Leplae** <bartleplae@hotmail.com> wrote:

From: Bart Leplae <bartleplae@hotmail.com>
Subject: RE: Comments Regarding How GPS Provides Empirical Evidence Against Special Relativity

To: "HARRY RICKER" <kc3mx@yahoo.com>
Date: Friday, February 15, 2013, 2:37 PM

Harry,

I fully agree with your statement about time dilatation.

Through the paper "The Twin Paradox; a GPS satellite thought experiment"
<http://www.gsjournal.net/Science-Journals/Essays/View/4417> I try to provide evidence for the fact that time dilatation cannot be due to a relative velocity as claimed by special relativity.

In follow-up of my remark about the constancy of light relative to ECI.

Consider the situation whereby an EM wave is sent to Venus and bounces back to the Earth (as with the Shapiro radar experiment).

The EM wave will have the constant speed c relative to the ECI when leaving or arriving back at the Earth.

This EM wave will have the same constant speed c relative to the reference frame of Venus at the point of bouncing back.

Nevertheless the reference frames of Venus and Earth are moving relative to each other.

(the ECI can obviously not be used in the neighborhood of Venus)

This is one of the reasons why I postulate that at any point in between the Earth and Venus, the EM wave will have a speed c relative to the local reference frame. By assuming this local reference frame has the same speed as an object would have when in a circular orbit, we arrive to a situation where the EM wave gradually transitions from the reference frame of the Earth to the reference frame of Venus. The motion of these local reference frames relative to each other is what forces the EM wave to follow a slightly curved path.

The difference between the ECI and the reference frame that I postulate is that the ECI rotates once a year relative to the reference frame I postulate.

Although the induced error is marginal, it is reflected through the GPS Position Harmonics for which scientists have not (yet) provided an explanation.

(google for the words Draconic GPS to find the applicable publications ...)

Regards,

Bart

Van: HARRY RICKER [<mailto:kc3mx@yahoo.com>]

Verzonden: vrijdag 15 februari 2013 14:45

Aan: Bart Leplae

Re: Comments Regarding How GPS Provides Empirical Evidence Against Special Relativity

Bart,

Thanks for your comments. Obviously any statements that are definitive based upon an understanding of available empirical information are subject to revision based upon new

empirical information.

As I understand you, you do not dispute the fact that the so called time dilation, which is actually an empirical clock correction for GPS, can not be due to a relative velocity as claimed by special relativity.

Harry

From: Bart Leplae <bartleplae@hotmail.com>
Subject: Comments Regarding How GPS Provides Empirical Evidence Against Special Relativity
To: kc3mx@yahoo.com
Date: Thursday, February 14, 2013, 9:32 AM

Dear Mr. Ricker,

I just read your contribution: "Comments Regarding How GPS Provides Empirical Evidence Against Special Relativity"

Although I largely agree with your conclusions, I want to comment on:

"The fourth one is that the velocity of light is an absolute constant relative to the Earth Centered Coordinate or ECI reference system"

I think there are reasons to believe that the constancy of the velocity of light is slightly different from the ECI reference frame.

Instead I would state: The velocity of light is constant relative to a rotating reference frame whereby each point on its reference frame has a velocity which is the velocity an object would have that rotates in a stable circular orbit around the center of the Solar System.

As a consequence, the ECI rotates once in a year relative to the reference frame in which the speed of light is a constant.

"The fifth one is that in the GPS system, the orbital velocity correction is executed by entering a satellite clock correction to the effect that the satellite clock is made to run fast by the same factor that the orbital velocity relative to the ECI causes the satellite clock to run slow."

Here too, the velocity correction is relative to slightly different rotating reference frame.

As a consequence, the satellite clocks frequencies show an harmonic with a frequency that equals the 'draconic year'.

(the time it takes the GPS constellation to rotate relative to the Sun)

I documented this in :

The curvature of light due to relativistic aberration

<http://www.gsjournal.net/Science-Journals/Essays/View/4332>

Best regards,
Bart Leplae

Bart,

SOURCES

NPA, the Natural Philosophy Alliance, is a world wide forum for the critical analysis of mainstream science and the open exchange of related ideas. See www.k1man.com/vr Coming NPA video conferences: www.k1man.com/vc NPA members: www.k1man.com/members

World Scientists: www.k1man.com/ws World Science Database: www.k1man.com/wsd

Scientific Papers: www.vixra.org www.arxiv.org www.k1man.com/v www.k1man.com/k

UNH Research: <http://www.physics.unh.edu/research>
<http://www.library.unh.edu/branches/physlib.html> General Science Journal <http://www.gsjournal.net/>

ACADEMIC COURSES: Calculus: www.k1man.com/Calculus Other courses: www.k1man.com/Khan
Atom: www.k1man.com/Atom Limit: www.k1man.com/Limit

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One hour thirty nine minute conference call regarding the scientific organization of science itself.
www.k1man.com/Conf130225.mp3

PARTICIPANTS WERE:

Harry H. Ricker, BSEE, Virginia Tech, MSEE, UNH; Glenn A. Baxter, P.E., BSIE URI; Nick Percival, **BS Physics, Harvard**; **Dr. Al McDowell, BSEE, Syracuse, PhD., Cornell**; **Dr. Satya Pal Asija, P.E.**, B.Sc., S.D.College/Punjab University, Graduate Institute of Electronic & Radio Engineers. (London), MBA University of Dayton, Post Graduate Diploma, University of Wales, Cardiff, UK., Doctor of Jurisprudence NKU/Salmon P. Chase;

One hour seven minute conversation regarding the scientific organization of science itself.
www.k1man.com/Ricker130224.mp3

PARTICIPANTS WERE:

Harry H. Ricker, BSEE, Virginia Tech, MSEE, UNH; Glenn A. Baxter, P.E., BSIE URI

Two hour three minute conversation between Glenn A. Baxter, P.E. and Don E. Mitchell.

PARTICIPANTS WERE:

Glenn A. Baxter, P.E., BSIE URI; Don E. Mitchell, **Software engineer, diverse mechanical and electronics, Supervision, Management, Production-engineering.** Non-degreed (some EE prerequisites) and non vocationally engaged in structured-field prototype as a retired software engineer/architect/logician/troubleshooter.

Nineteen minute conversation with Dr. Ian Cowan regarding how he and Alf Kelly came to disagree with Dr. Einstein's Special Relativity. www.k1man.com/Cowan130210.mp3 See Dr. Cowan's 26 Jan 13 NPA presentation at: https://www.fuzemeeting.com/replay_meeting/fccff073/3342175

PARTICIPANTS WERE:

Glenn A. Baxter, P.E., BSIE URI; Dr. Ian J. Cowan, Electrical Engineer, PhD. In mathematical modeling and computer simulation of thermal energy systems.

Dr. Bill Lucas joins our physics conference call this week. We discuss Dr. Lucas' NPA video conference presentation on 10 February 2013: https://www.fuzemeeting.com/replay_meeting/fccff073/3450307
www.k1man.com/Conf130211.mp3

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Dr. Rodney Bartlett's Interesting Paper:

www.k1man.com/f300 - The non-Higgs, revised electroweak unification, revised gravitation, and explained dark energy/dark mater – By Dr. Rodney Bartlett

International Amateur Radio Network programming is 27/7 daily and is simulcast on the short wave frequencies of 3.890 MHz., Lower Sideband, 7.242.5 MHz, Lower Sideband, and 14.275 MHz. Upper Sideband + - QRM. Live telephone call ins will be taken at 207 242 2143, and/or you can also participate in the live video conferences on Saturdays via computer at the above referenced URL. The video conference sponsor, NPA (the Natural Philosophical Alliance), is at www.k1man.com/H

OTHER PAPERS

Papers by Glenn A. Baxter, P.E. www.k1man.com/v

Papers by D. Sasso www.k1man.com/k

Papers by Harry H. Ricker www.k1man.com/h

Papers by Dr. Johannes C. Valks www.k1man.com/k1

Papers by Prof. Daniel Y. Cahill www.k1man.com/k2

Papers by JOSEPH A. RYBCZYK www.k1man.com/k3

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Papers by Dr. Z Y. Wang www.k1man.com/k7

Papers by Dr. M.S. Khan www.k1man.com/k8

Paper by Dr. Karl V. Thompson's paper www.k1man.com/k9

Papers by Dr. Peter Kohut www.k1man.com/k10

Papers by Dr. John R. Calarco www.k1man.com/k11

“To kill an error is as good a service, and sometimes even better than, establishing a new truth or fact.”

Charles Darwin

"Great causes are never tried on the merits; but the cause is reduced to particulars to suit the size of the partisans, and the contention is ever hottest on minor matters." - Ralph Waldo Emerson - From his essay "Nature" 1844

BELGRADE LAKES INSTITUTE FOR ADVANCED RESEARCH -

SCIENTIFIC JOURNAL - PREVIOUS ISSUES: www.k1man.com/p

*** THE INSTITUTE'S MISSION STATEMENT:

The Belgrade Lakes Institute For Advanced Research was founded in 1999 to study original scientific work of great thinkers going back as far as possible (even thousands of years) to reexamine ideas in search of hints or inspiration which might apply to current scientific progress in physics. The late Dr. Richard Feynman**** is an Honorary Member of the Institute, and his lectures and publications serve as a corner stone for our work and model for our thinking and efforts. Other examples of great thinkers and scientists would include people such as Michael Faraday, Maxwell, Euler, Cantor, Lavoisier, Lise Meitner, Otto Hahn, Bohr, De Broglie, Planck, Avogadro, Boltzmann, Compton, Schrodinger, Dr. xSA Albert Einstein, Newton, Leibnitz, Pythagoras, Descartes, and many others. Membership in the Institute is by application and majority of votes timely cast by the general membership. For more information call the USA number 207 242 2143 or E-mail Institute@K1MAN.com Articles for the Scientific Journal are invited. Our mail address is Belgrade Lakes Institute For Advanced Research, 310 Woodland Camp Road, Box 440, Belgrade Lakes, Maine 04918 USA www.k1man.com/physics

PAST ISSUES OF THE SCIENTIFIC JOURNAL: www.k1man.com/p

****Richard Feynman

Richard Feynman (1918–1988), American physicist and Nobel laureate. Feynman shared the 1965 Nobel Prize in physics for his role in the development of the theory of quantum electrodynamics, the study of the interaction of light with atoms and their electrons. He also made important contributions to the theory of quarks (particles that make up elementary particles such as protons and electrons) and superfluidity (a state of matter in which a substance flows with no resistance). He created a method of mapping out interactions between elementary particles that became a standard way of

representing particle interactions and is now known as Feynman diagrams. Feynman was a noted teacher, a notorious practical joker, and one of the most colorful characters in physics.

Feynman was born in New York City. As a child he was fascinated by mathematics and electronics and became known in his neighborhood as “the boy who fixes radios by thinking.” He graduated with a bachelor’s degree in physics from the Massachusetts Institute of Technology (MIT) in 1939 and obtained a Ph.D. degree in physics from Princeton University in 1942. His advisor was John Wheeler, and his thesis, “A Principle of Least Action in Quantum Mechanics,” was typical of his use of basic principles to solve fundamental problems.

During World War II (1939-1945) Feynman worked at what would become Los Alamos National Laboratory in central New Mexico, where the first nuclear weapons were being designed and tested. Feynman was in charge of a group responsible for problems involving large-scale computations (carried out by hand or with rudimentary calculators) to predict the behavior of neutrons in atomic explosions.

After the war Feynman moved to Cornell University, where German-born American physicist Hans Bethe was building an impressive school of theoretical physicists. Feynman continued developing his own approach to quantum electrodynamics (QED) at Cornell and then at the California Institute of Technology (Caltech), where he moved in 1950.

Feynman shared the 1965 Nobel Prize in physics with American physicist Julian Schwinger and Japanese physicist Tomonaga Shin’ichirō for his work on QED. Each of the three had independently developed methods for calculating the interaction between electrons, positrons (particles with the same mass as electrons but opposite in charge) and photons (packets of light energy). The three approaches were fundamentally the same, and QED remains the most accurate physical theory known. In Feynman’s *space-time* approach, he represented physical processes with collections of diagrams showing how particles moved from one point in space and time to another. Feynman had rules for calculating the probability associated with each diagram, and he added the probabilities of all the diagrams to give the probability of the physical process itself.

Feynman wrote only 37 research papers in his career (a remarkably small number for such a prolific researcher), but many consider the two discoveries he made at Caltech, superfluidity and the prediction of quarks, were also worthy of the Nobel Prize. Feynman developed the theory of superfluidity (the flow of a liquid without resistance) in liquid helium in the early 1950s. Feynman worked on the *weak interaction*, the *strong force*, and the composition of neutrons and protons later in the 1950s. The weak interaction is the force that causes slow nuclear reactions such as beta decay (the emission of electrons or positrons by radioactive substances). Feynman studied the weak interaction with American physicist Murray Gell-Mann. The strong force is the short-range force that holds the nucleus of an atom together. Feynman’s studies of the weak interaction and the strong force led him to believe that the proton and neutron were composed of even smaller particles. Both particles are now known to be composed of quarks.

The written version of a series of undergraduate lectures given by Feynman at Caltech, *The Feynman Lectures on Physics* (three volumes with Robert Leighton and Matthew Sands, 1963), quickly became a standard reference in physics. At the front of the lectures Feynman is shown indulging in one of his favorite pastimes, playing the bongo drum. Painting was another hobby. In 1986 Feynman was appointed to the Rogers Commission, which investigated the Challenger disaster—the explosion aboard the space shuttle Challenger that killed seven astronauts in 1986. In front of television cameras, he demonstrated how the failure of a rubber O-ring seal, caused by the cold, was responsible for the disaster. Feynman wrote several popular collections of anecdotes about his life,

including "*Surely You're Joking Mr. Feynman*" (with Ralph Leighton and Edward Hutchings, 1984) and *What do YOU Care What Other People Think?* (with Ralph Leighton, 1988).

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Glenn A. Baxter, P.E., at his home in Belgrade Lakes, Maine U.S.A.



Glenn A. Baxter, P.E., age 4, with his dad, Frank H. Baxter (Bachelor of Science Degree, Mechanical Engineering, 1914, Rhode Island State College), and President of Frank H. Baxter Associates, 370 Lexington Avenue, New York City. See www.k1man.com/fhb and also www.k1man.com/w10 and www.k1man.com/Loons