

LIST OF MAIN ACHIEVEMENTS FOR BIG PRIZE NOMINATORS

All big prize nominations are in the public domain with the exception of the Nobel Prize, where nominators often make their nominations public. I have been told by Dr. Richard Amoroso, Chair of several Vigier Conferences, that I have been nominated several times for a Nobel Prize, probably by a Member of the Royal Swedish Academy and others. Amoroso did not give me the name of the nominator, and I did not ask for it, but there is no reason to doubt that I have been nominated by several different nominators for the discovery of B(3), which developed into the famous Einstein Cartan Evans (ECE) unified field theory. This is a short synopsis for big prize nominators of what I think are my main achievements. Nominators and supporters will of course mention what they think are the main achievements, and they are often severely restricted in the space allowed for a nomination. I am greatly honoured by the nominations and sentiments of the colleagues, about twenty big prize nominations in all to date. ECE is a new School of Thought in physics, whereas the nominations are still being assessed by the old School of Thought, the standard model. Since ECE has been read fifty million times or more since 2002, by the best in the world, it is clear that the colleagues wish for a logical assessment of the totality of my work.

The totality of my research work stretches back to 1971 in an unbroken chain of papers, reviews, books, edited books, essays, broadcasts and postings. There are over twenty four thousand items in all and my work has already received copious recognition by the British Government. The nominators feel that the work should receive recognition at the highest level by academic prizes such as the Nobel Prize. I have produced well over a thousand scientific papers and books, and contemporary computer based scientometrics {1} show very clearly that the work is making an unprecedented impact. Prizes should be judged by impact and logic, and not by school of thought or theories and ideas that happen to be in fashion. Radically new thought is always the best kind of thought and by definition unfashionable. I have probably produced more work (1971 to date) than any single scholar in physics and chemistry, judged by individual scholarly output. In a sense, all my work culminated in ECE unified field theory, inferred in March 2003, and by now well known and greatly developed. It is therefore best, in my own opinion, to describe it in a historical context. The early work was in its time spectacularly successful, and ultimately led to the discovery of B(3) at Cornell in November 1991.

Chemical Physics

This early work from 1971 to 1986 is summarized in all detail in the second volume of my autobiography {2} in which every publication of that era is reviewed and put in historical context. Very briefly its main achievements include the first understanding of molecular dynamics in the far infra red, the co pioneering of molecular dynamics computer simulation {3} and its application to the far infra red and a wide range of spectroscopies {4}, the discovery by computer simulation and spectroscopy of many new fundamental types of correlation function, the founding and organization of the European Molecular Liquids Group, the co pioneering of the use of array processors with supercomputers at the IBM Kingston Clementi environment in New York State, the co pioneering of computer animation at IBM Kingston and Cornell Theory Center, the application of group theory to statistical mechanics, the development of molecular dynamics computer simulation of condensed matter in the presence of external fields, for example the first simulation of the Langevin functions, discovery by computer simulation of many non linear properties of liquids, the extension of the memory function theory to many areas of physics and chemistry {5}, the development of novel reflection spectroscopies of various kinds, the development of theories of non linear optics, notably the theory of optical NMR at Cornell Theory Center, the theory

and computer simulation of non linear optics, notably the inverse Faraday effect, the editing with Kielich of a classic volume on nonlinear optics {6}, the first computer simulations at the University of Zurich and ETH Zurich of many non linear optical effects, discovering many new types of correlation functions associated with non linear optics, and culminating in the discovery of the B(3) field at Cornell Theory Center in November 1991, published in Physica in 1992 {7}.

This work received copious recognition, notably a “world record” of about fifteen prestigious post doctoral Fellowships, a D. Sc. Degree at the age of 27 in 1978, the youngest recipient under modern rules, and still a “world record” now, the Royal Society of Chemistry Harrison Memorial Prize (1978), and Meldola Medal (1979), and a nomination for the Marlow Medal (1979 / 1980). Later it was recognized as part of lifetime achievement by a Civil List Pension in 2005 (roughly equivalent to O. M. or C. H.), and a coat of arms and armorial badge in 2008 upon being raised to the Gentry. The establishment of the European Molecular Liquids Group is marked by two drops of liquid in my armorial badge on www.aias.us. Reference volumes in which I appear include thirty four editions of the world’s leading professional reference book: “Marquis Who’s Who” in America, the World, Science and Engineering since 1999, and “Burke’s Peerage and Gentry” (2012).

Theoretical Physics

The development of my work into theoretical physics followed a letter from the renowned Jean-Pierre Vigié in January 1993 indicating that B(3) implies rigorously non zero photon mass, overturning many ideas of the standard model. The main achievements of that era (1993 to 2003) include the incorporation of B(3) and photon mass theory into electrodynamics in many different ways, summarized in the five volume “The Enigmatic Photon” co authored with Vigié {8} in the acclaimed van der Merwe series of volumes in foundational physics, the incorporation of B(3) theory into non linear optics (second edition of ref. {6}), the incorporation of B(3) into classical and quantum electrodynamics {9}, the initial stages of the theory of energy from spacetime, of great practical importance and now realized industrially, and the first inroads into unified field theory.

The famous Einstein Cartan Evans (ECE) unified field theory was initiated in March 2003{10} and is based directly on a mathematically irrefutable geometry. ECE theory can only be criticised experimentally. After twelve years of intense international scrutiny it is known to be mathematically watertight simply because it is Cartan geometry within a few simple hypotheses that do not affect the Cartan geometry. The B(3) field was incorporated into general relativity in the first few papers of ECE theory. The detailed scientometrics {1} show that ECE made an immediate delta function impact among the best in the world, an impact that has been sustained among the best in the world at a very intense level to time of writing (June 2015). The most notable achievements of ECE include the derivation of all the equations of physics and engineering from a geometry that includes torsion inferred by Cartan in the early twenties, notably the field and potential equations of electromagnetism, gravitation, and the weak and strong nuclear forces, the interrelation of the four fundamental fields, derivation of all the fundamental wave equations of physics from Cartan’s differential geometry, the unification of quantum mechanics and general relativity, the refutation of the second Bianchi identity in what has become a classic paper, UFT88 {11}, the refutation of the Einsteinian general relativity and its improvement with ECE theory, the refutation of the Heisenberg uncertainty principle and the elimination from physics of non Baconian ideas that are “not even wrong” in the famous words of Pauli. In other words the unworkable and unscientific obscurity of standard physics has been eliminated by the clear, geometrically based, experimentally testable, ideas of ECE theory. Discovery of the quantum Hamilton and quantum force equations, development of spin connection resonance theory culminating in

UFT311 {12} by Eckardt et al., a paper that demonstrates experimentally the existence of the spin connection in electrodynamics and verifies ECE theory experimentally. The first clear understanding of how badly needed electric power can be obtained from spacetime using circuits such as the one given in UFT311, the first clear understanding of low energy nuclear reactors using the ECE spacetime. Geometrical explanation of many fundamental phenomena of physics, including phase effects such as the Berry phase, the Aharonov Bohm effects, precessional effects such as the Thomas and equinoctial precessions. Development of new field equations of gravitation to replace the incorrect Einstein field equation of gravitation and the incorporation of the gravitomagnetic field. Development with Eckardt and Lindstrom of the antisymmetry laws of ECE theory and refutation of many of the ideas of standard physics using these laws. Replacement of the Dirac equation with the ECE fermion equation, elimination of the non Baconian Dirac sea, and the non Baconian negative energy of the Dirac equation, inference of many new types of fermion resonance spectroscopy from B(3) and ECE theory. Development of one fermion quantum field theory from the fermion equation. Development with Eckardt and Lindstrom of the vacuum ECE theory, and new explanations of vacuum effects such as the anomalous g factor of the electron, the Lamb shift and other radiative corrections. Development of new types of particle collision theory (the R theory of ECE), new types of orbit theory culminating in the x theory of ECE and three dimensional orbit theory. The x theory is able to describe all that the Einstein theory can to the same experimental precision, and also the velocity curve of a whirlpool galaxy. Both Einstein and Newton fail completely to describe the velocity curve. The x theory eliminates the need for unobservable dark matter and dark energy. Recently the ECE theory has been applied to the Evans Morris effects, which observe many novel frequency shifts that the standard model cannot describe. This hugely popular series of papers, written in 2014 and 2015, has resulted in several refutations of the standard model, and several key advances. In UFT313 the second Bianchi identity, the foundation stone of Einsteinian relativity overturned in UFT88, was developed into the Jacobi Cartan Evans (JCE) identity which led almost immediately to the inference of ECE2 theory, simpler and in many ways more powerful even than ECE theory.

The ECE theory to 2007 has been ably summarized by Laurence Felker {13} in the classic “The Evans Equations of Unified Field Theory” translated into Spanish by Alex Hill. The ECE theory after 2007 is reviewed in UFT100 on www.aias.us, UFT200 and “The Principles of ECE Theory” {14}.

Mathematics

Mathematics was my second tripos subject as an undergraduate at Aberystwyth, and I graduated top first in chemistry in 1971. Basic discoveries in mathematics are rare on the ground compared with physics and chemistry. In my own opinion my most important contribution to mathematics is the discovery of several fundamental identities of geometry. The first of these is the Cartan Evans identity in the early stages of ECE theory. This identity is the basis of the inhomogeneous field equations of ECE theory and is the Cartan identity written with Hodge duals of the relevant two forms (antisymmetric tensors). The Hodge dual of a two form in four dimensions is another two form. In UFT109 I discovered an exact identity of torsion which I name the Evans identity simply to distinguish it from other known identities. The Evans torsion identity is an exact identity of tensor and form analysis valid in any space of any dimension. The Cartan Evans identity on the other hand is valid in four dimensions only. In UFT313 I discovered the Jacobi Cartan Evans (JCE) identity, which is the famous 1902 second Bianchi identity corrected with torsion. The JCE identity is again an exact identity of geometry valid in any space of any dimension. In deriving it from the Jacobi identity the Evans identity of UFT112 emerged from the analysis self consistently. In basing

his famous 1915 field equation of general relativity on the torsionless second Bianchi identity, Einstein unfortunately made a fundamental error which is corrected in the ECE theory. This is why ECE theory is named the Einstein Cartan Evans theory. I have also made many contributions to differential geometry such as numerous detailed proofs, and detailed intricate translations of notations for the non specialist, translations from differential form to tensor to vector notation, definitions of the meaning of tangent space indices, removal of tangent space indices and so on, in cooperation with Eckardt and Lindstrom.

Electrical Engineering

Many contributions to the basic theory of circuits that are able to take energy from spacetime. This work started in 2005 and was precisely verified experimentally in 2015 in UFT311. I am not an electrical engineer myself, but work on a day to day basis with electrical engineers in international cooperation.

Scientometrics (or Impact Measurement)

I have devised a completely new and original method of measuring impact {1} which has been published in UFT307 and as a book. It is much more accurate and much more detailed than the traditional reliance on citation. The scientometrics in ref. (1) use many measuring parameters based on computer feedback software. The scientometrics indicate beyond reasonable doubt that ECE is making an unprecedented impact, and has been studied an estimated fifty million times since inception. The quality of the readership can be seen from the scientometrics to be the highest possible. It is regularly studied for example at the best two hundred universities in the world. The scientometrics are carefully filtered to remove extraneous and irrelevant data.

New Methods of Publication and Education

Many open source methods of publication and education have been devised using the www.aias.us and www.upitec.org websites. The former is archived at the British Library from the National Library of Wales on www.webarchive.org.uk, the digital archives. The vast readership of these websites defies hyperbole, and they are bringing much needed education to people at all levels, from university staff to post doctorals, post graduates and undergraduates to teachers and pupils at leading schools, to industry and government around the world, and to literally millions of individuals. The publication method has been recognized by the colleagues through the fact that they read and accept the theory with enthusiasm. The ECE theory has therefore been exhaustively scrutinized or refereed, on countless occasions by the best in the world.

Recent Advances (2015 - present)

There have been rapid advances followed routinely in the best universities, institutes and similar in the world (known from detailed and precise scientometrics). All these advances have been checked carefully with computer algebra by co author Horst Eckardt. The main achievement is the unification of electrodynamics, gravitation and fluid dynamics with Cartan geometry in a mathematical space which has finite torsion and curvature. The new type of unification has been named ECE2 unified field theory. It has the great advantage of being Lorentz covariant in a space with finite torsion and curvature. This has been named ECE2 covariance. ECE2 has resulted in many inferences and discoveries which are all archived on www.aias.us, www.upitec.org, and www.archive.org. They include the inference of non Newtonian effects which could be of use in counter gravitation. ECE2 gives a precise explanation of light deflection due to gravitation, perihelion precession and the velocity curve of a whirlpool galaxy without the use of dark matter. It can explain planetary precession in

several equivalent ways, without use of the Einstein theory, which it criticizes and improves. It has inferred new types of spectroscopy by criticizing the Dirac approximation and by replacing it with an exact theory, giving many new types of spectral patterns that challenge the foundations of relativistic quantum mechanics.. It has produced an exact theory of orbital precession by solving simultaneously the ECE2 lagrangian and hamiltonian. The fundamental vacuum particle has been inferred and used to explain the radiative corrections on the basis of the exact Dirac equation, without using the Dirac approximation. The latter removes the radiative corrections, and this is contrary to observation. So ECE2 improves the Dirac equation. The method removes the need for quantum electrodynamics. Similarly the Rayleigh Jeans and Planck laws have been criticized during the development of the Evans / Morris papers and new experimental tests proposed

ECE2 has given new explanations for geodetic and Lense Thirring precession based on Cartan geometry, and in the work of 2016 has shown that fluid dynamics has a field equation structure that is identical with that of electrodynamics and gravitational theory. These inferences allow a vast array of new developments in the future. For example the latest work has shown that orbital precession can be explained as a vacuum effect using the principles of fluid dynamics. In general, ECE2 is simpler and more powerful than the standard model because it is rigorously Baconian and avoids the use of unobservables and adjustables. In consequence both ECE and ECE2 have a very large and sustained readership in the world's best universities.

Recent Advances in Electrical Engineering

Although I am not myself an electrical engineer, I have worked in close cooperation with electrical engineers who have shown that ECE theory gives a precise explanation of a reproducible and repeatable circuit capable of taking energy from spacetime. This circuit is of clear importance as a source of new energy and was developed by Osamu Ide and the Munich group of Horst Eckardt. UFT311 on www.aias.us shows that ECE is the only theory capable of describing it. UFT364 shows that it is reproducible and repeatable.

Development of Distance Teaching Methods.

The scientometrics show that the AIAS Institute of which I am co President along with Gareth Evans has developed distance teaching methods whereby our work is routinely studied and accepted in the world's top twenty universities and similar. This has been done in cooperation with UPITEC, of which Horst Eckardt is President So the ECE and ECE2 theories have been accepted by the best in the world, and the teaching of the two theories takes place routinely alongside with the standard model. I think that this is a healthy development in physics and feel that this development is worthy of recognition in the same way as the standard model. ECE and ECE2 are now mature, accepted theories which have made several major advances, a small fraction of which are summarized here. The scientometrics show that the theories will be studied indefinitely into the future.

References

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