

Comprehensive Gravitation

Roger Ellman

Abstract

This article, “Comprehensive Gravitation”, is a collected series of four separate papers comprehensively treating various aspects of gravitation. This article lists the papers with the full title and abstract of each.

The papers can be found at:

https://www.researchgate.net/profile/Roger_Ellman/info
followed by selecting *Contributions*.

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#1 - Connecting Newton's G With the Rest of Physics – Modern Newtonian Gravitation Resolving the Problem of “Big G's” Value

As a simplified, idealized understanding of a physical system the General Relativity model has been highly successful in its gravitational role. However, it fails to address the problem of sufficiently precise measurement of “Big G”, the Newtonian Gravitation Constant, and has failed to obtain connection of “Big G” to the rest of physics. Because “Big G” arises naturally from Newton's treatment of gravitation, this paper elaborates the Modern Newtonian Model of Gravitation and through it resolves the problems of “Big G” at which General Relativity has failed. Specifically: the causes of the problems in measuring “Big G” are resolved, “Big G” is connected to the rest of physics, and a sufficiently precise value of “Big G” is obtained by calculation from other fundamental physical constants.

#2 – The Experimental Data Validation of Modern Newtonian Gravitation Over General Relativity Gravitation

Paper # 1- *Connecting Newton's G With the Rest of Physics – Modern Newtonian Gravitation Resolving the Problem of “Big G's” Value* derived the value of the gravitation constant “Big G”, G of Newton's Law of Gravitation, directly from other physics fundamental constants but left it to a subsequent paper to experimentally validate the derived G . The present paper performs that validation by examining various past experiments intended to measure “Big G”, in each case determining the acceleration, a_g , as found per Einstein's General Theory of Relativity versus per Modern Newtonian Gravitation for that case. The ratio of those two times the reported measured “Big G” value yields a result identical to the G determined from the derived formulation for G , within the error range of the reported measured “Big G” measurement. That thus validates the correctness of the derived formulation for G .

#3 -The Mechanics of Gravitation – What It Is; How It Operates

From a start of only the limitation on the speed of light, the necessity of conservation, and the impossibility of an infinity in material reality, the present paper presents a comprehensive development of the mechanics, the operation of gravitation

Experience shows that everything has a cause and that those causes are themselves the results of precedent causes, and *ad infinitum*. Defining and comprehending the causality or mechanism operating to produce any observed behavior is essential to understanding or explaining the behavior.

The behavior of gravitation is well known, described by Newton's Law of Gravitation. But what gravitational mass is, how gravitational behavior comes about, what in material reality produces the effects of gravitation, is little understood. The extant hypotheses include Einstein's General Relativity's bending of space, efforts to develop “quantum gravitation”, and attempts to detect “gravitons”. None of those addresses the cause, the mechanism of gravitation.

#4 - Gravitational and Anti-gravitational Applications

As demonstrated in the above three papers gravitation consists of an outward flow from gravitating masses. That means that by manipulating that flow gravitation can be controlled, which makes it possible to extract energy from the gravitational field, which makes the generation of *gravito-electric* power technologically feasible. Such plants, like hydro-electric plants, would be non-polluting and would not need fuel.

The manipulating of the flow of gravitation includes reversing the action from attraction to repulsion. Such a device, engineered to enable controlled adjustment of the amount and the direction of its action, could provide for a spacecraft both launch levitation and deep space travel acceleration. It could provide both levitation and horizontal motion for a flying vehicle over a planet surface.

This technology, which uses readily abundantly available materials and techniques, is ready now for research and engineering refinement.

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