GR 16: Alternative Approaches

Time: Friday 9:00–10:30 Location: H-HS IX

GR 16.1 Fri 9:00 H-HS IX

Gravitation auf der Basis der lorentzianischen Relativität — •Albrecht Giese — Taxusweg 15, 22605 Hamburg

Als die Relativitätstheorie um das Jahr 1900 eingeführt wurde, da standen zwei fundamental verschiedene Ansätze zur Diskussion. Der frühere wurde vorgetragen von Lorentz / Poincare auf der Basis physikalischer Prozesse: Kontraktion abgeleitet aus der bekannten Kontraktion von Feldern bei Bewegung, Dilatation von einer angenommenen Oszillation mit c innerhalb von Elementarteilchen. - Dieser Ansatz wurde jedoch als spekulativ angesehen, weil das damalige Verständnis von Physik diesen Ansatz nicht stützte. Die von Einstein postulierten Prinzipien erschienen gradliniger.

Mittlerweile jedoch entsprechen diese Annahmen vollständig dem physikalischen Verständnis. Diesem folgend, können nicht nur die Vorgänge der Speziellen Relativitätstheorie auf bekannten physikalischen Tatbeständen aufgebaut werden, sondern ebenso die Allgemeine Relativität, also die Gravitation. Wenn wir die bekannten Tatsachen der Reduktion von c im Gravitationsfeld und die innere Oszillation von Teilchen verwenden, lassen sich alle Ergebnisse der relativistischen Gravitation daraus deduzieren. Und das unter Verwendung von euklidischer Geometrie und klassischer Physik anstelle von eigens definierten Prinzipien.

Die so aufgebaute Relativitätstheorie ist dramatisch einfacher als die Einsteins, liefert aber alle bekannten Ergebnisse ebenso wie Einstein und löst daneben unverstandene Probleme wie u.a. die Dunkle Energie.

Weitere Information: www.ag-physics.org/gravity

GR 16.2 Fri 9:15 H-HS IX

Relativity expressed as a speed problem instead of a space-time problem as done by special relativity. — •Osvaldo Domann — Stephanstr. 42, 85077 Manching, Germany

Variables of one physical event expressed in two relative moving inertial reference systems are defined by the constant relative speed. As the variables of special relativity are built on space and time instead of speed to get the constant light speed in both reference systems, unphysical relative variables of time and space and contractions (twin paradox) result. The present paper is a work where relativity is treated as a speed problem to get the constant light speed in both reference systems. The result is that time and space are absolute variables without contradictions. Relativity is given as Galilei relativity multiplied with the relativistic gamma factor. The approach also concludes that light is emitted with light speed in the reference system of its source and that it arrives to the second inertial reference system with the speed c+-v, contrary to Einsteins postulate, that light moves always with light speed independent of its source. More at www.odomann.com

GR 16.3 Fri 9:30 H-HS IX

A solution of the interpretation problem of Lorentz transforms — •Grit Kalies — HTW University of Applied Sciences Dresden

By connecting the energy concepts of thermodynamics and special theory of relativity (SR) it can be shown that Einstein's interpretation of the well-known equation E = mc^2 as complete mass-energy equivalence results as a special case for moving point masses and contradicts the first and second laws of thermodynamics. Thermodynamics suggests matter-energy equivalence with an energetic distinction between matter and mass [1, 2].

Due to the observer dependence of quantities in SR, the changes in time, length, mass etc. with velocity should be apparent on the one hand, but on the other hand they are measured and partly described as real, which is called the "interpretation problem" [3] of Lorentz transforms that exists within SR since more than a hundred years. In this paper is shown that the interpretation problem can be solved by means of matter-energy equivalence, in full agreement with the experimental evidence and newer findings of quantum physics [2].

[1] G. Kalies: Matter-Energy Equivalence, Zeitschrift für Physikalische Chemie, 2019, DOI: 10.1515/zpch-2019-1487. [2] G. Kalies: Vom Energieinhalt ruhender Körper: Ein thermodynamisches Konzept von Materie und Zeit, De Gruyter, Berlin, 2019. [3] P. Lorenzen: Theorie der technischen und politischen Vernunft, Reclam, Stuttgart, 1978.

GR 16.4 Fri 9:45 H-HS IX

Unique Root Approach A Working Alternative to String/M-Theory — •Jürgen Kässer — Diekholzen Deutschland

The Unique Root (UR) approach takes a new way to unification. It is based on the demand of local isomorphism between internal and external symmetry groups. It results that SO(6) and SU(4)are the basic symmetries of the universe. These symmetries allow formulating physics in a timeless six dimensional space and a Lagrangian describing interaction between four entities.

Assuming this physics to hold also in our universe - a subspace of the complex expansion of the six dimensional one - four dimensional physics is deducted. Link is the action integral.

The conflict between background dependent and independent theories can be resolved. So as well the Standard model of particle physics as a quantum theory of gravitation, giving inter alia the results of General Relativity, an explanation of Dark Matter and a solution for the fundamental problem of separability and individuation are found.

GR 16.5 Fri 10:00 H-HS IX

Matter-energy equivalence and the origin of mass — •Grit Kalies — HTW University of Applied Sciences Dresden

By connecting the energy concepts of thermodynamics and special theory of relativity it can be shown that Einstein's interpretation of the well-known equation E = mc^2 as complete mass-energy equivalence results as a special case for moving point masses, but contradicts the first and second laws of thermodynamics. Thermodynamics suggests matter-energy equivalence with an energetic distinction between matter and mass [1, 2].

Today, the concepts of the origin of mass are fragmented into many ideas, including the suggestion of the Higgs mechanism. By means of matter-energy equivalence, the origin of mass can be deduced from only one principle, which corresponds to the basic rule of economy and elimination of unnecessary assumptions. The empirically very precisely confirmed equivalence of inert and heavy mass can, for the first time, not only be described, but explained [2]. The far-reaching consequences for fundamental concepts of theoretical physics (because special relativity and the associated idea of spacetime form a basis for the standard models of particle physics and cosmology) will be outlined.

[1] G. Kalies: Matter-Energy Equivalence, Zeitschrift für Physikalische Chemie, 2019, DOI: 10.1515/zpch-2019-1487. [2] G. Kalies: Vom Energieinhalt ruhender Körper: Ein thermodynamisches Konzept von Materie und Zeit, De Gruyter, Berlin, 2019.

GR 16.6 Fri 10:15 H-HS IX

Alpha, to be invariant or not to be? — •Manfred Geilhaupt — 41844 Dalheim, Hessenfeld 10

Within QED the elementary charge (e) and the Planck-Constant (h) are fundamental constants. Within GR the velocity of light (c) is a fundamental constant. So for that in such classical physics those constants are assumed to be independent of space and time. The Sommerfeld fine structure constant (FSC), definition from 1916 (alpha: e^2/hc), depends on charge, velocity of light, and Planck constant. So the fine structure number must be independent of space and time as well. However, in 2011 Webb et al. showed by experiment that the FSC depends on the metric of space when comparing many of different white dwarf spectra all over the universe directions and distances. So the FSC is not space invariant from the experimental point of view. So here we have a basic problem in classical Physics revealed by experiment. So the only chance to explain this experimental result from a logical and physical point of view is to focus on Einsteins General Theory of Relativity. We will demonstrate and show: The FSC depends on Einsteins g44-metric-number of space if we combine the GR Field Equation of Motion with the principles of Thermodynamics (TD). Conclusion: The FSC must be different in value if the atomic-interferometry experiment is executed on earth (137,035999046), Parker et al., already done 2018 or on the moon (137,035999239), to be done.