【所属分类】： **自然科学--天文学**

【标题】： 推迟引力场如何取代牛顿引力场(补正稿)

【作者】： 汤克云

【摘要】： 推迟引力是一种弱场引力理论, 其核心是引力场以光速传播。一方面，我们已用推迟引力取代牛顿引力，成功求解了水星近日点进动；另一方面，在用推迟引力求解光子偏折、雷达回波延迟和引力红移的过程中，我们又发现：对于以光速运动的粒子，牛顿场仍在起重要作用。为研究以光速飞行的粒子受到的引力场，我们将洛仑兹变换中之速度极限—真空中的光速修正为引力场中的光速上限, 则推迟效应依然存在，洛仑兹变换依然成立。在此基础上，给出了以任意速度飞行的粒子受到的引力表达式—取代引力场表达式。取代引力场论告诉我们，引力源总是连续不断地向周围空间发射引力场并以光速传播，下一个时刻发出的引力场将更新和取代前一个时刻发出的引力场。进一步，如果测试质量相对于引力源运动，一般来说，测试质量受到的引力场将不是牛顿场而是推迟引力场，换句话说，推迟引力场将取代牛顿场，但条件是推迟引力场的径向分量大于该点的牛顿引力场。反之，如果推迟引力场的径向分量小于该点的牛顿引力场，它将无力取代该点的牛顿引力场，测试质量受到的引力场将仍是牛顿场。 根据这样的认识, 可圆满解释三大引力检验. 类似地，推迟电磁场与库仑场之间也存在类似的取代关系。 尝试讨论了某些广义相对论教科书中用史瓦希度规验证水星进动和光子偏折时的两个不自洽之处. 发现,现在的事实是,用一个修正了的洛仑兹变换能够得出与观测值相符的结论. 这可能告诉我们, 在引力场中光子的速度真的可以大于真空中的光速, 广义相对论关于引力场中光速不变的假定可能需要修正.

【关键词】： 推迟引力场, 牛顿引力场, 真空中的光速, 引力场中的光速上限，引力场的取代, 电磁场的取代

【联系方式】： kytang@bao.ac.cn

【发布时间】： 2011-12-30

【发表状态】： N未发表

【TITILE】： Replacement of Newtonian Gravitation by Retarded Gravitation

【AUTHORS】： Keyun Tang

【ABSTRACT】： The theory of retarded gravitation is a kind of theory for weak gravitational field, which shows us that the gravitational field travels at the speed of light in vacuum. I have successfully resolved the precession of perihelion of Mercury by the retarded gravitation. But we find that Newtonian gravitational fields always play an important role when we study the deflection of light and gravitational redshift. To solve this puzzle, we modify the limit in Lorentz transformation from the speed of light in vacuum to the speed limit of light in gravitational field which is a little bit higher than the speed of light in vacuum; and a general gravitational theory, the replacement theory of gravitational field, which covers the travelling speed of particle from zero to the speed of light is given. The replacement theory of gravitational field shows us that gravitational source transmits gravitational field to all space around the source and renews the field continuously according to Newtonian gravitational law; but if the test mass is moving relative to the source, and if the radius component calculated by the retarded gravitation is stronger than the Newtonian gravitation at same point, the Newtonian gravitational field will be replaced by the radius component of the retarded gravitation; if the radius component of the retarded gravitation is weaker than Newtonian gravitation at same observation point, it is not strong enough to replace the Newtonian gravitational field. The gravitational field acting with the test mass still is the Newtonian field instead of the retarded field. The replacement relationship is also valid for electromagnetic field. Two contradictions in the verifications of the precession of perihelion of Mercury and the deflection of light ray by the Schwarzschild metric are discussed. It is found that the upper limit of photon's speed could be faster than the speed of light in vacuum.

【KEYWORDS】： retarded gravitation, Newtonian gravitation, speed of light in vacuum, speed limit of light in gravitational field, replacement of gravitation, replacement of electromagnetic field

【ADDRESS】： kytang@bao.ac.cn

【全文文件】： 推迟引力场如何取代牛顿引力场（补正稿）-20111230.doc

返回

目前没有评论内容