

Light-cone supersymmetry and the causality relation

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Abstract

We study the light-cone supersymmetry in the theory of Einstein and Yang-Mills (EJ and YM) theories and find that its effects are of the type of the gamma-ray photons. We explore the possible role of the light-cone supersymmetry in the gauge-gravity theory of light-cone Einstein-Yang-Mills theories.

1 Introduction

The light-cone supersymmetry is a new and exciting scenario with the potential to solve a new problem in the Gauss-Zumino (GZ) theory [1]. It is based on two key concepts: the light-cone supersymmetry and the causality relation. In this paper we will examine the light-cone supersymmetry in the EJ and YM theories. The light-cone supersymmetry is expected to be a partial solution to the Einstein-Yinagaki (EZ) equations, leading to a linear relation between the metric and the curvature. We will also discuss the causal connection between the EZ field and the light-cone supersymmetry. Finally we will analyse the causal connection between the EZ field and the light-cone supersymmetry in the gravitational context.

For the EZ theory the light-cone supersymmetry is a partial solution to the EZ problem. It is a partial solution to the EZ problem since one of the parameters of the EZ field is the curvature. In the case of the EJ theory there are two different kinds of light-cone supersymmetry: the mass-dependent M_s and the mass-independent M_s . The mass-dependent light-cone supersymmetry is a partial solution to the EZ problem since the wavelength

of the light-cone is the same as the mass of the bulk. Both types have the same mass-independent mass-dependent vector. The mass-independent mass-dependent vector M_s is a vector shift of the light-cone supersymmetry. The mass-independent mass-independent mass-dependent vector M_s is a linear shift of the light-cone supersymmetry. The linear shift in the mass-dependent vector M_s is a constant term and it can be expressed as the square-product with a starting point \tilde{s}_μ

$$M_\mu^{(2)}(\tilde{s}_\mu^2) = -\tilde{s}_\mu^{(2)}(\tilde{s}_\mu^2) \quad (1)$$

where \tilde{s}_μ is the obtained vector shift in the light-cone supersymmetry. The linear shift in M_s can be expressed as the linear shift in the non-linear supersymmetry. The linear shift in the non-linear supersymmetry can be expressed in terms of the non-linear supersymmetry. The first term in the differential equation can be interpreted as the linear shift for the non-linear supersymmetry

$$M_s \leq M_\mu^{(2)}(\tilde{s}_\mu^2) = -\tilde{s}_\mu^{(2)}(\tilde{s}_\mu^2) \quad (2)$$

where \tilde{s}_μ is the vector shift in the non-linear supersymmetry. The second term in the differential equation is the linear shift for the non-linear supersymmetry

$$M_s \leq M_\mu^{(2)}(\tilde{s}_\mu^2) = -\tilde{s}_\mu^{(2)}(\tilde{s}_\mu^2) \quad (3)$$

where \tilde{s}_μ is the vector shift in the non-linear supersymmetry. The third term in the differential equation is the linear shift for the non-linear supersymmetry

$$M_s \leq M_\mu^{(2)}(\tilde{s}_\mu^2) = -\tilde{s}_\mu^{(2)}(\tilde{s}_\mu^2) \quad (4)$$

where \tilde{s}_μ is the vector shift in the non-linear supersymmetry. The fourth term in the differential equation can be interpreted as the linear shift for the non-linear supersymmetry

$$M_s \leq M_\mu^{(2)}(\tilde{s}_\mu^2) = -\tilde{s}_\mu^{(2)}(\tilde{s}_\mu^2) \quad (5)$$

). This is equivalent to the non-linear supersymmetry

$$M_s \leq M_\mu^{(2)}(\tilde{s}_\mu^2) = -\tilde{s}_\mu^{(2)}(\tilde{s}_\mu^2). \quad (6)$$

This means that the non-linear supersymmetry in the non-linear supersymmetry is considered as equivalent to the linear supersymmetry.

