

# Considerations about gravitation

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Abstract: The similarities between gravitation and quantum mechanics have been stressed. The notion of gravitational spin has been introduced. At the end the idea has been presented that trembling motions should not be removed.

Two planets cannot be placed on the same orbit similarly as two electrons with the same sense of spin. Two double stars rotate on the common orbit if they have equal masses. Then their center of gravity is placed at the same distance from the center of them both.

Both these stars differ in the gravitational spins implicated by the Dirac-Einstein equation.

The motion “Zitterbewegung“ appears in quantum mechanics [1].

In General Relativity the trembling exists, too. Namely:

- the wave having is itself the source of a new gravitational field;
- in the case of gravitational waves of high frequency we have an amplification;
- pseudotensor  $t^{ik}$  is a square function of the derivatives of quantity  $h_{ik}$ , it contributes to the great factor  $\lambda^{-2}$  [2].

In such a case the waves themselves create the field of background in which they propagate.

In my opinion it is the selfinteraction with ether.

My last conclusion consists in the fact that we should not remove at every price the trembling of metric on the small areas in comparison with  $\lambda$ .

References:

[1] J. D. Björken, S. D. Drell, “Relativistic Quantum Mechanics”

[2] L. D. Landau, E. M. Lifshitz, „Theory of Field“