

*Comments to the*

Report on the Paper GENERAL GEOMETRY AND GEOMETRY OF ELECTROMAGNETISM, by Shervgi S. Shahverdiyev.

The author claims that he has found a way of unifying the derivation of such equations like the one governing the motion of a relativistic particle subject to gravity, and that of a charged particle moving in an electromagnetic field.

*In the paper there is no such a claim.*

*Every main result is stated in the abstract in separate sentences and there is nothing relevant to any kind of unification.*

This unification, seems to consists in the assumption that one has a connection-like object  $\Gamma(x, x_u)$ . Then the curvature of this connection-like object gives a force. An appropriate choice of  $\Gamma(x, x_u)$ , namely, the usual connection associated to the standard pseudometric  $g_{\mu\nu}$  in relativity, reproduces the gravitational field.

*Actually, it is demonstrated that a new geometry called "General Geometry" includes Riemannian geometry as a special case in sec.3. There is no discussion of gravitational field, and force in sec 3. and in the rest of the paper.*

The electromagnetic field is obtained by choosing, somehow, the connection like structure using the electromagnetic tensor  $F$ .

*In sec. 4, whole Electromagnetism is obtained by choosing  $\Gamma(x, x_u)$  as  $F(x)$ . Functions  $\Gamma(x, x_u)$  are general functions of coordinates. Therefore, it is possible to choose them as  $F(x)$ .*

I must say that, in my opinion, the interpretation of curvatures as being fields seems to be well known.

*Interperation of equation of motion and Lagrangian for gravitational field in terms of the curvature of Riemannian geometry is well known for gravitation only.*

*We show that equation of motion and Lagrangian for electromagnetic field can be derived from curvature characteristic of a new geometry called Geometry of Electromagnetism, which is completely different from Riemannian geometry and is the most simplest special case of General Geometry.*

And what is done in the paper is essentially well known too.

*To my best knowledge and as it is follows from responses of mathematicians and physicists for this paper after posting it on the Internet, there is nothing relevant to General geometry and its applications in the literature. If you know that someone discovered General Geometry before, please let me know where that paper is published.*

The author does not describe any example, other than gravity and electromagnetism, in which his structure could be usefull.

*Description of such structures are under investigation.*

*The main result of the paper is to show that electromagnetism has its own underlying geometry and it turns out that this geometry is different from Riemannian geometry. And is a special case of General geometry.*

In any case, the General Geometry, that is, the geometry associated to that structure, does not look, at first sight, really general, it seems to leave out too many branches of geometry. The author does not explain the motivation for this name.

*The motivation for this name can be included in the paper. It is called "General Geometry" because it includes already known Riemannian geometry, a new geometry underlying Electromagnetism, a new geometry underlying a unified model of Elelctromagnetism and Gravitation, and infinte number of geometries, physical interpretation of which is not known at the present time, as special cases. Because of this, name "General Geometry" is more appropriate in my opinion. It will be up to readers to rename it later.*

There are almost no references in the paper.

*I agree with this remark. All relevant references will be added and you are well-come to request to add relevent in your opinion references.*

*The paper with references added, motivation for name "General Geometry" included and with enlarged Introduction and Discussion sections is sent to Professor Roger G. Newton.*