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CURVATURE FORMS AND INTERACTION OF FIELDS*

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Abstract. We work out the general idea that a composite continuous physical system can be mathematically modelled locally as a completely integrable geometric distribution on a manifold, the time-recognizable subsystems to be modelled by corresponding subdistributions, and any local interaction between two subsystems of the physical system to be described in terms of the nonintegrability of the two subdistributions making use of the corresponding two curvature forms. As an illustration we present the corresponding description of photon-like objects, based on the notion that *photon-like objects are real, massless time-stable physical objects with intrinsically compatible translational-rotational dynamical structure*. The spatial propagation of the system follows some external/shuffling symmetry of the distribution.

1. Introduction

It hardly deserves to put under dispute the thesis that the concept of interaction in physics is a basic one. One of the most important in our view lessons that we more or less have been taught is that any detection and further study of a physical object *requires* some energy-momentum exchange. So, *every physical object necessarily carries energy-momentum, every quantity of energy-momentum needs a carrier, and every interaction between two physical objects has an energy-momentum exchange aspect*. The second lesson concerning any interaction is that, beyond its *universality*, *energy-momentum is a conserved* quantity, so NO loss of it is allowed: it may only pass from one object to another. This means, for example, also, that every *annihilation* process causes *creation* process(es), and the full energy-momentum that has been carried by the annihilated objects, is carried away by the created ones. The energy-momentum exchange abilities of any physical object realize its protection against dangerous external influence on one side, and reveal

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