

Inversion and General Invariance in Space-Time

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A general formula for division and hence inversion in a relativistic Clifford-Dirac algebra is derived. Despite the fact that this algebra is not a division algebra, it proves an elegant basis for the formulation of much of physics. Where division is undefined turns out, in many cases, to correspond to invariants of dynamical significance, such as the light cone, the general invariant quantities in electromagnetism, and the basis set of quantities in the Dirac equation. Apart from such areas, where there has already been significant development in science, new sets of inter-related invariant quantities, involving the spin and the total energy for example, are suggested as possibilities for further investigation and development. It is suggested that an inter-action involving an energy exchange between an object and an observer, requires such a physical inverse. It is concluded that the role inversion plays in scaling and in physical inter-action parallels the behavior of physical reality.