

ON A MODIFICATION OF THE PHYSICAL THEORY  
FORMALISM DUE TO THE ESTABLISHMENT  
OF THE TRANSFORMATION SYMMETRY  
POSTULATE AND THE PROBLEM  
OF SECOND-ORDER EFFECTS  
IN THE OPTICS OF MOVING  
BODIES

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S u m m a r y

The postulate of a symmetry of formulas used at the derivation of Lorentz transformations has been used to check other transformations. To reach a better adequacy between the experiment and the theory, the method of symmetrization of classical transformations has been used, and necessary modifications to the theory dealing with certain problems have been introduced in such a way. The Lorentz transformations have been obtained without imposing any confinements upon the magnitude of velocities of the reference frames and signals. A modified “a posteriori” theory of the Michelson experiment has been constructed, and its schematic generalization onto the case of mechanical signals has been made. The result of this experiment has been substantiated by means of symmetric transformations and on the basis of the Fermat principle. It has been demonstrated that the classical theory, owing to the application of nonsymmetric transformations, had mistakenly predicted the existence of the second-order effect, which the experiment had been designed to seek for.