CORRIGENDA

Correction to the Article

“TWO SUBGROUPS OF THE LORENTZ GROUP AND THEIR PHYSICAL SIGNIFICANCE”

Acta Physica Hungarica 20, 116–120, 1966

By

L. JÁNOSSY

CENTRAL RESEARCH INSTITUTE FOR PHYSICS, BUDAPEST

(Received 19. II. 1968)

In above article we made some erroneous statement about subgroups of the Lorentz group. The Lorentz matrices can be defined by the relation

$$\tilde{A}_q \Gamma A_q = \Gamma.$$

The Lorentz matrices which can be diagonalized by a similarity transformation have the eigenvalues

$$E_1 = \frac{1}{E_2} = \sqrt{\frac{c+v}{c-v}}, \quad E_3 = \frac{1}{E_4} = e^{iq}.$$

There exist sets of matrices A_φ with $v = 0$ and matrices A_v with $\varphi = 0$. It was incorrectly stated that the latter form subgroups of the Lorentz group. That the two sets do not form subgroups can be easily seen by the following consideration. The matrices A_v and $A'_v = A_\varphi A_v A_\varphi^{-1}$ belong both to the set with $\varphi = 0$, while A_φ and $A'_\varphi = A_v^{-1} A_\varphi A_v$ to the set with $v = 0$.

Consider the product

$$A_\varphi^1 A_\varphi^{-1} = A_v^{-1} A_\varphi A_v A_\varphi^{-1} = A_v^{-1} A'_v. \quad (1)$$

If the matrices with $v = 0$ respectively $\varphi = 0$ formed groups indeed, then $A_\varphi^1 A_\varphi^{-1}$ would have to belong to the first group, while $A_v^{-1} A'_v$ to the second. Relation (1) shows that this is impossible.

Although the matrices A_v and A_φ do not form groups they have interesting physical properties which we hope to discuss in another communication.

I am indebted to P. KIRÁLY for drawing my attention to the above errors.