

**AN APPLICATION OF TENSOR ALGEBRA FOR
THE FUNDAMENTAL FORCES OF NATURE.**

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ABSTRACT

In this work, we discuss the all four known forces of Nature by applying Tensor Algebra.

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Let us assume that in the following material energy tensors, e, g, w, and s denote electromagnetic, gravitational, weak interaction and strong interaction forces respectively.

$$A^{eg} \quad (1)$$

$$B_{ws} \quad (2)$$

$$C_{se} \quad (3)$$

$$D^{ws} \quad (4)$$

$$E_{eg} \quad (5)$$

$$F_{gw} \quad (6)$$

$$(1).(2).(4).(5) = A^{eg} B_{ws} D^{ws} E_{eg} = \text{Unity} \quad (7)$$

$$(1).(3).(4).(6) = A^{eg} C_{se} D^{ws} F_{gw} = \text{Unity} \quad (8)$$

Equating (7) and (8), (1).(2).(4).(5) = (1).(3).(4).(6)

Simply bying (2).(5) = (3).(6)

Substituting the values in the above equation $B_{ws} E_{eg} = C_{se} F_{gw}$

i.e. $M_{wseg} = X_{segw} \quad (9)$

According to the law of equality of tensors, if two tensors of same rank and same type are equal, then their components are one to one equal, using this law in (9) we get the following relations:

$$w = s ; s = e ; e = g ; g = w$$

From the above relation we obtain $e = g = w = s$ (10)

Discussion

From equation (10) we get that all the four known forces of Nature are different forms of one force only. This is only an elementary attempt. The above equations should be transformed into tensor calculus, and then undergo a rigorous tensor analysis.