

Abstract Submitted
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Upgrading Tensors DOUGLAS SWEETSER, none — The covariant derivative of the standard model has 3 parts: a coupling strength, a group generator, and a potential. Constrained to 4 dimensions, tensors can be equipped with multiplication and division via an isomorphism to quaternions. U(1) symmetry is then a normalized quaternion, SU(2) a unit quaternion, and SU(3) the product of two normalized quaternions. One tensor can house the 3 symmetries of the standard model: $D_\mu \rightarrow \left(\frac{A}{|A|} \exp(A - A^*)\right)^* \frac{B}{|B|} \exp(B - B^*) \nabla$.

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none

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