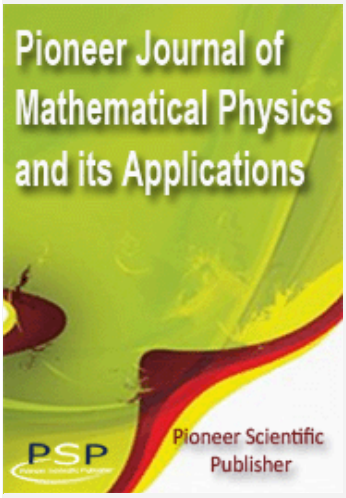
Pioneer Journal of Mathematical Physics and its Applications

Volume 8, Issues 1-2, Pages 13-26 (September & December 2015)

ISSN : 2277-8799



CROSS PRODUCT IN N DIMENSIONS – THE DOUBLEWEDGE PRODUCT

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Received September 18, 2014

Abstract

The cross product × frequently occurs in Physics and Engineering, since it has large applications in many contexts, e.g., for calculating angular momenta, torques, rotations, volumes etc. Though this mathematical operator is widely used, it is commonly expressed in a 3-D notation which gives rise to many paradoxes and difficulties. In fact, instead of other vector operators like scalar product, the cross product is defined just in 3-D space, it does not respect reflection rules and invokes the concept of "handedness". In this paper, we are going to present an extension of cross product in an arbitrary number N of spatial Dimensions, different from the one adopted in the Exterior Algebra and explicitly designed for an easy calculus of moments.

Keywords and phrases: cross product, pseudovector, N Dimensions, dimensional, moment, N-D, wedge product.