

On Meson Algebras

Artibano Micali and Mustapha Rachidi

Abstract. The wave equation of a meson particle involves matrices satisfying other relations than the classical Dirac matrices; whereas the relations between the Dirac matrices mean that they induce a representation of a Clifford algebra, the matrices required by a meson particle induce a representation of another algebra called a meson algebra. Here we present basic properties of meson algebras following the original works of Dirac, Kemmer and Schrödinger, but with a more geometrical language. Thus we can give a larger algebraic content to the concept of meson algebra and propose generalizations.

Keywords. Meson Algebras, Duffin commutation rules, wave equation, elementary particles.

Artibano Micali
Département des Sciences Mathématiques
Université Montpellier II
Place E. Bataillon, 34095 Montpellier Cedex 05, France
e-mail: micali@darboux.math.univ-montp2.fr

Mustapha Rachidi
Académie de Reims, Section mathématique
LEGT F. Arago, 1 rue F. Arago
51100 Reims, France
e-mail: mu.rachidi@wanadoo.fr

Received: November 2005

Accepted: June 2006