

Krein Spaces in de Sitter Quantum Theories

P. Siegl

FNSPE CTU in Prague & NPI AS CR & APC Universite Paris 7

Experimental evidences and theoretical motivations lead to consider the curved space-time relativity based on the de Sitter group $SO(1,4)$ or $Sp(2,2)$ as an appealing substitute to the flat space-time Poincare relativity. Quantum elementary systems are then associated to unitary irreducible representations of that simple Lie group. At the lowest limit of the discrete series lies a remarkable family of scalar representations involving Krein structures and related indecomposable representation cohomology which deserves to be thoroughly studied in view of quantization of the corresponding carrier fields. The purpose of this presentation is to indicate possible extensions of an exemplary case, namely the so-called de Sitterian massless minimally coupled field.

This is a joint work with J.-P.Gazeau and A. Youssef.