Abstract Submitted
for the CAL09 Meeting of
The American Physical Society

Yang-Mills Field from Quaternion Space Geometry, and its Klein-Gordon Representation ALEXANDER YEFREMOV, Institute of Gravitation and Cosmology, Moscow, Russia, VIC CHRISTIANTO, Sciprint.org, FLORENTIN SMARANDACHE, University of New Mexico, Gallup Campus — Analysis of covariant derivatives of vectors in quaternion (Q-) spaces performed using Q-unit spinor-splitting technique and use of SL(2C)-invariance of quaternion multiplication reveals close connexion of Q-geometry objects and Yang-Mills (YM) field principle characteristics. In particular, it is shown that Q-connexion (with quaternion non-metricity) and related curvature of 4 dimensional (4D) space-times with 3D Q-space sections are formally equivalent to respectively YM-field potential and strength, traditionally emerging from the minimal action assumption. Plausible links between YM field equation and Klein-Gordon equation, in particular via its known isomorphism with Duffin-Kemmer equation, are also discussed.

Florentin Smarandache
University of New Mexico, Gallup Campus

Date submitted: 08 Sep 2009 Electronic form version 1.4