

1046-46-468

Naoto Kumano-go* (ft24343@ns.kogakuin.ac.jp), Kogakuin University, 1-24-2 Nishishinjuku, Shinjuku-ku, Tokyo, 163-8677, Japan. *Phase space Feynman path integrals via piecewise bicharacteristic paths and their semiclassical approximations.*

We give a fairly general class of functionals for which the phase space Feynman path integrals have a mathematically rigorous meaning. More precisely, for any functional belonging to our class, the time slicing approximation of the phase space path integral converges uniformly on compact subsets of the phase space. Our class of functionals is rich because it is closed under addition and multiplication. The interchange of the order with the Riemann integrals, the interchange of the order with a limit and the perturbation expansion formula hold in the phase space path integrals. The use of piecewise bicharacteristic paths naturally leads us to the semiclassical approximation on the phase space.

Reference: N. Kumano-go and D. Fujiwara, Phase space Feynman path integrals via piecewise bicharacteristic paths and their semiclassical approximations, Bull. Sci. Math. 132 (2008) 313-357. (Received September 04, 2008)