

Apstrakt: Feynman's path integrals in ordinary, p -adic and adelic quantum mechanics are considered. The corresponding probability amplitudes $K(x'',t'';x',t')$ are analytically calculated for systems with quadratic Lagrangians.

These exact general formulas are presented in the form which is invariant under interchange of the number fields

$\mathbb{R} \rightarrow \mathbb{Q}_p$ and $\mathbb{Q}_{\{p\}} \rightarrow \mathbb{Q}_{\{p'\}} \quad p \neq p'$.

According to this invariance we have that adelic path integral is an essentially fundamental object in mathematical physics of quantum phenomena.

Literature:

- C. C. Grosjean, A general formula for the calculation of Gaussian path-integrals in two and three euclidean dimensions, J. Comput. Appl. Math., 23 (1988), 199-234.
- G. S. Djordjevic, B. Dragovich and Lj. Nestic, Adelic Path Integrals for Quadratic Lagrangians, publication in the IDAQPRT, World Scientific, Singapore, 2003.
- V. S. Vladimirov, I. V. Volovich and E. I. Zelenov, p -Adic Analysis and Mathematical Physics, World Scientific, 1994.