

# Probabilistic approximation of evolution operators related to higher order Schrödinger equations

**Mariya PLATONOVA** *St. Petersburg Department of Steklov Mathematical Institute of Russian Academy of Sciences, St. Petersburg State University, Russia*, E-mail: mariyaplat@gmail.com

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**Abstract:** We consider the Cauchy problem for the higher order Schrödinger equation

$$i \frac{\partial u}{\partial t} = \frac{(-1)^m}{(2m)!} \frac{\partial^{2m} u}{\partial x^{2m}} + V(x)u, \quad u(0, x) = \varphi(x), \quad m \in \mathbf{N}.$$

Probabilistic approximations of the Cauchy problem solution  $u(t, x)$  for the Schrödinger equation ( $m = 1$ ) by expectations of functionals of stochastic processes were constructed in [1]. The case when  $V = 0$  and  $m \geq 2$  was considered in [2]. Now we extend our results to the case when  $m \geq 2$ . As before the approximating operators take the form of expectations of functionals of a certain random point field.

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## References

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