Conditions for uniformly convergence of expansions of continuous functions from Nikolskii classes in eigenfunction expansions of the Schrodinger operator (on closed domain)

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Abstract: In this work the spectral expansions of the Schrodinger operator on closed domain are investigated. Using the asymptotical estimation of spectral function of Schrodinger operator on closed domain uniformly convergence of eigenfunction expansions of continuous functions from Nikolskii classes is proved. Properties of the continuous functions from Nikolskii classes are used.

Keywords:

Schrodinger operator, eigenfunction expansions, Riesz means, uniformly convergent.

References:

- [1] V.A. II'in, Spectral theory of differential operators, Nauka, Moscow, 1990.
- [2] E.I. Moiseev, The uniform convergence of certain expansions in a closed domain, Soviet Math. Dokl., vol. 18, pp. 549-533, 1977.
- [3] Sh.A. Alimov, A.A. Rakhimov, On uniformly convergence of spectral expansions in a closed domain, Doclades of Uzbec Acad. Science, vol. 10, pp. 5-7, 1986.
- [4] Sh.A. Alimov, A.A. Rakhimov, On the localization spectral expansions in a closed domain, J. Differential equations, vol. 33, no 1, 1997.
- [5] A.A. Rakhimov, Localization of the spectral decompositions of distributions, connected with the Schrodinger operator. Modern problems of math. Physics and information technologies, Tashkent, vol. 1, pp. 167-172, 2003.
- [6] A.A. Rakhimov, K. Zakaria K, On an estimation of eigenfunctions of Schrodinger operator in a closed domain, Math Digest Research Bulletin of Institute for Mathematical Research, vol. 2, no 1, 2008.
- [7] A.A. Rakhimov, A. Ahmedov, H. Zainuddin, On the spectral expansions of distributions connected with Schrodinger operators, Applied Mathematics Letters, 25, pp. 921-924, 2012.
- [8] A. Ravshan, A. Ahmedov, On the divergence of spectral expansions of elliptic differential operators, Malaysian Journal of Mathematical Sciences, vol. 5, no 2, pp. 185-196, 2011.