

## Documents

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**The approximation of the solution of heat conduction problem in circular plate with concentrated initial heat**  
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### Abstract

The approximation of the solution of the heat equation by using the spectral decompositions of the distributions on circular region where initially heat source concentrated at a point is studied. A solution of the problem represented as the Fourier Bessel series that will be understood in terms of distributions. Regularized solutions for different values of the order of Riesz means at a singular point are analysed. The numerical approximation of the solution of heat equations on the circular plate with the singular initial heat source is carried out with the help of MATLAB software. The optimization of the regularization of the series solutions at a non-singular point of the plates at initial time and critical index is established, which guaranteed to achieve the good convergence of the Riesz means at the index exceeding a critical point. © 2024 AIP Publishing LLC.

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