

# **Efficient multi-level preconditioners for convection-diffusion problems**

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We present an efficient and robust multi-level preconditioner for convection-diffusion problems. The convection-diffusion problem is discretized using a spectral method based on Legendre expansion functions. The expansion coefficients are determined using a Least-Square projection method. The inverse of the associated coefficient matrix is approximated using a two-level preconditioner where the first preconditioner mainly precondition the coefficients arising from the diffusion operator and the second preconditioner mainly precondition coefficients arising from the convection operator.