

Solving uncertain Poisson equations

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Abstract

We consider the Poission equation with mixed Dirichlet and Neumann boundary conditions on an arbitrary polygonal grid in 2 dimensions. Using optimization based error bounds for the discretization error and a variant of the dual weighted residual (DWR) method by Becker and Rannacher (2001), we compute the worst case error of a given linear functional of the solution, given uncertain parameters in the mass distribution.

References

Becker, R and R. Rannacher. An optimal control approach to a posteriori error estimation in finite element methods. *Acta Numerica 2001*, 1–102.