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GRID EQUIDISTRIBUTION BASED ON *A PRIORI* ERROR ANALYSIS

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We consider supraconvergence properties of cell-centered and point-centered finite difference schemes on nonuniform meshes for elliptic problems in one and two dimensions ([1], [2], [3]). The error estimates, written as sums of the local error contributions, provide criteria for the choice of monitor functions to derive adaptivity in the scheme. The method used to construct the grids is adaptive movement of a fixed number of mesh points by monitor function equidistribution. A practical importance of these grids lies in the possibility to resolve layers. Numerical results are provided to illustrate the effectiveness of our method for mesh generation.

REFERENCES

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