

NUMERICAL ANALYSIS OF THE RADIOSITY EQUATION USING THE COLLOCATION METHOD*

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Abstract. The collocation method for solving the occluded radiosity equation is examined, theoretically and empirically. Theoretical results are examined, including questions of superconvergence of the collocation solution. The use of “discontinuity meshing” is examined for both piecewise constant and piecewise linear collocation. Also, numerical integration of the collocation integrals is examined, and a near-analytic evaluation method is given.

Key words. radiosity equation, integral equation, numerical integration, collocation methods, discontinuity meshing.

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