

The Towson University Mathematics Colloquium

presents

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Optimal Approximation Spaces for Problems with Rough Coefficients

Thursday, October 22
4:00 p.m. – 5:00 p.m.
7800 York Road, Room 320

This talk concerns the approximate solution of $2m$ -th order elliptic equations with rough coefficients, such as arise in the study of heterogeneous materials. Since it is known that the usual finite element method, which employs piecewise polynomial shape functions, does not provide accurate approximation for such problems, we use "special shape functions", which reflect the local nature of the unknown solution more accurately than do piecewise polynomials. These shape functions are solutions of the related homogeneous equation, and can be viewed as a generalization of classical L-splines. I will also address the problem of identifying optimal shape functions, and it is shown that the special shape functions are optimal in the sense of N -widths.

Refreshments will be served at 3:30 p.m.



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