

APPLIED MATHEMATICS COLLOQUIUM

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Location: Middlesex College Room 204

Symbolic-numeric algorithms for computing validated results

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Abstract:

In this talk, we will introduce how to compute validated results via hybrid symbolic-numeric algorithms. These hybrid algorithms start with computing an approximate solution of good quality for a given problem using numerical algorithms, then a verification step using exact rational arithmetic or interval arithmetic is appended. If this step is successful, then a validated result is computed for the previously computed approximation. For example, we will show how to certify the existence of real solutions of a positive-dimensional polynomial system.