APPLIED MATHEMATICS COLLOQUIUM

Date: Wednesday, November 18, 2015
Time: 2:30 – 3:30 p.m.
Location: Middlesex College Room 204

Symbolic-numeric algorithms for computing validated results

Dr. Lihong Zhi

Key Laboratory of Mathematics Mechanization
Academy of Mathematics & System Sciences
Chinese Academy of Sciences, Beijing, China

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.