APPLIED MATHEMATICS COLLOQUIUM

FAST AND STABLE MATRIX MULTIPLICATION

OLGA HOLTZ
University of California, Berkeley

ABSTRACT:

We propose a general framework to analyze numerical stability of recursive matrix multiplication algorithms. As a consequence of our analysis, we show that the exponent of matrix multiplication can be achieved by numerically stable algorithms. We also show that new group-theoretic algorithms proposed by H. Cohn, R. Kleinberg, B. Szegedy and C. Umans are numerically stable. We perform detailed error analysis for several specific fast group-theoretic algorithms.

Authors: J. Demmel, I. Dumitriu, O. Holtz, R. Kleinberg

MONDAY, OCTOBER 16, 2006
4:30 PM
Building 2, Room 105

Refreshments at 4:00 PM in Building 4, Room 174
(Math Majors Lounge)

Applied Math Colloquium: http://www-math.mit.edu/amc/fall06
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Massachusetts Institute of Technology
Department of Mathematics
Cambridge, MA 02139