Matrix Computations and Scientific Computing Seminar

Organizer: J. Demmel and M. Gu

Wednesday, 12:10–1:00 pm, 380 Soda Hall

Sep 28   **William Kahan**, UC Berkeley (retired)
Ignorance vs. Numerical Computation

Without knowing how to drive, you can let the computers in an Autonomous Automobile take you safely wherever you wish to go, if you believe the developers and manufacturers of such vehicles. Without knowing anything much about Numerical Analysis, nor even Calculus, you can rely upon "Mindless, brute-force application of large-scale parallel computing" to deliver correct numerical results, if you perform arithmetic as advocated in the seductive book "THE END of ERROR – Unum Computing" (quote from p. 219). Can this promise be believed? Not if you are a Mathematician acquainted with the history and foundations of our real number system. For other gullible readers of that book, a few short counter-examples will be supplied. Anybody can be a programmer; no license is required. Professionals with a Computer Science degree need never have taken a course on modern Numerical Analysis, and have no idea of the role that Error Analysis plays in the reliability of approximate numerical computing. Should this topic be part of the curriculum on Computability imposed upon every would-be Computer Scientist? See people.eecs.berkeley.edu/~wkahan/UnumSORN.pdf & citations there.