ABSTRACT:

We describe the theoretical and algorithmic foundations of the branch-and-reduce approach to the global optimization of continuous, integer, and mixed-integer nonlinear programs. These include: a theory of convex extensions for the construction of closed form expressions of convex envelopes of nonlinear functions, an entirely linear-programming-based approach to global optimization, a theory of domain reduction, and proofs of finiteness for certain branching schemes. Applications from a variety of application areas will be reviewed and computational results with BARON will be reported.

MONDAY, OCTOBER 1, 2007
4:30 PM
Building 4, Room 270

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