Analysis of Numerical Methods for the Monge-Ampere Equation

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The Monge-Ampere equation is a nonlinear partial differential equation that appears in a wide range of applications, e.g. optimal transportation and reflector design. Solutions of the Monge-Ampere equation are in general not smooth, and hence difficult to compute with standard discretizations. I will review, from the point of view of compatible discretizations, a large class of methods proposed so far. I will explain how this new point of view leads to an analysis of the theoretical convergence properties of the methods.

Biography

Gerard Awanou was born and raised in the western African country of Benin. He graduated from the University of Abomey-Calavi in Benin in 1996. After a one year visit to the Abdus Salam International Centre for Theoretical Physics, Awanou attended the University of Georgia and completed his Ph.D. in 2003. Dr. Awanou held a postdoctoral position at the Institute for Mathematics and its Applications. His research has been supported by the National Science Foundation and an Alfred P. Sloan Fellowship. Dr. Awanou's recent research has been on canonical finite element methods and the numerical analysis of Monge-Ampere type equations from the point of view of compatible discretizations.