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**Thomas L Lewis\*** (tllewis3@uncg.edu). *Convergent finite difference methods with second order local truncation error for Hamilton-Jacobi equations.*

A new finite difference (FD) approximation method is proposed for stationary Hamilton-Jacobi problems with Dirichlet boundary condition. The FD methods have second order local truncation error and converge to the unique viscosity solution of the first order fully nonlinear partial differential equation. The new methods are not monotone. Instead, a stabilization term called a numerical moment is used to ensure the proposed schemes are admissible, stable, and convergent. Numerical tests are provided that compare the accuracy of the proposed scheme to that of the Lax-Friedrich's method. (Received September 21, 2017)