Mohammad Khavanin* (mohammad.khavanin@und.edu) and Hadi Jabbari (hadi.jabbari@und.edu). Homotopy Perturbation Method (HPM) for Quasilinear and Nonlinear Partial Differential equations.

In this paper, we apply He’s Homotopy Perturbation Method (HPM) for solving partial differential equations. Previous results deal largely with linear examples and numerical justifications of convergence, whereas we exactly solve both quasilinear and nonlinear equations, including those of intrinsic interest such as the Eikonal Equation. We use an equivalent, simplified version of He’s equations for increased clarity. (Received September 11, 2019)