1014-35-620   **Wenyuan Wu*** (`wwu25@uwo.ca`), Department of Applied Mathematics, University of Western Ontario, London, ON. N6G 5B7, Canada. *Differential elimination for approximate PDE systems.*

We propose a differential elimination method for identifying and including missing constraints of PDE systems with approximate coefficients. A modified definition of leading linear and nonlinear part of PDE system is given in this paper. The key idea is to use SVD to process the coefficient matrix of leading linear part. Then we apply diagonal homotopy to incrementally process leading nonlinear part. Optimization of our algorithm and some examples are discussed in the paper. (Received September 21, 2005)