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**Wenyuan Wu** and **Zhonggang Zeng\*** (zzeng@neiu.edu), Department of Mathematics,  
Northeastern Illinois Univeristy, Chicago, IL 60625. *The Numerical Irreducible Factorization of  
Multivariate Polynomials*. Preliminary report.

Computing the irreducible factorization of a multivariate polynomial is an ill-posed problem whose solution is high sensitive to data perturbations. With a proper formulation, however, the numerical irreducible factorization becomes well posed and suitable for approximate computation. In this talk present the regularization theory, convergence theorems, and a two-staged algorithm for accurate computation of the numerical irreducible factorization in the presence of data errors. (Received September 01, 2010)