1056-93-1622        **Ionel Michael Navon\*** (`inavon@fsu.edu`), Dept of Scientific Computing, Dirac Sci Lib Bldg Rm#483, Florida State University, Tallahassee, FL 32306-4120, **K Alekseev Aleksey**, Moscow Institute of Physics and Technology, Moscow, 1, 41700,, Russia, and **M E Zelentsov**, Moscow Institute of Physics and Technology, Moscow, 41700,, Russia. *The Estimation of functional uncertainty using Polynomial Chaos and adjoint equations.*

The non-intrusive Polynomial Chaos (PC) and adjoint equations are considered and their performance compared for estimation of uncertainty of a valuable functional subject to large errors of the input data. Random variables providing maximum impact on the result (leading values) may be found using gradient information that allows reduction of the problem dimension. The Hermite polynomial expansion coefficients are determined for the leading values. The gradient may be also used for calculation of PC coefficients thus enabling further acceleration of the computations. (Received September 22, 2009)