
1071.33017**Gil, Amparo; Koepf, Wolfram; Segura, Javier****Computing the real zeros of hypergeometric functions.** (English)

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Authors' abstract: Efficient methods for the computation of the real zeros of hypergeometric functions which are solutions of second order ODEs are described. These methods are based on global fixed point iterations which apply to families of functions satisfying first order linear difference differential equations with continuous coefficients. In order to compute the zeros of arbitrary solutions of the hypergeometric equations, we have at our disposal several different sets of difference differential equations (DDE). It is analyzed the behavior of these different sets regarding the rate of convergence of the associated fixed point iteration. It is shown how combinations of different sets of DDEs, depending on the range of parameters and the dependent variable, is able to produce efficient methods for the computation of zeros with a fairly uniform convergence rate for each zero.

*Francisco Perez Acosta (La Laguna)**Keywords* : zeros; hypergeometric functions; fixed point iterations; numerical algorithms*Classification* :***33F05** Numerical approximation of special functions**33Cxx** Hypergeometric functions**65H05** Single nonlinear equations (numerical methods)

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