

1056-41-962

Joseph Kolibal* (Joseph.Kolibal@usm.edu), Department of Mathematics, 118 College Drive
5045, Hattiesburg, MS 39406-0001. *The second derivatives of the Chebyshev polynomials as
 M -matrices.* Preliminary report.

We develop a matrix formalism for expressing the second order derivative of the Chebyshev polynomials in a Chebyshev basis, allowing for the implementation of a direct methods for computing particular solutions for some inhomogeneous elliptic PDEs. The resulting matrix is an M -matrix whose coefficients can be explicitly generated with ease for computational studies. (Received September 19, 2009)