Electronic Transactions on Numerical Analysis.
Volume 7, 1998, pp. 124-140.

ISSN 1068-9613.

ETNA
Kent State University
etna@mcs.kent.edu

FAST LEJA POINTS*

J. BAGLAMA†, D. CALVETTI‡, AND L. REICHEL§

Abstract. Leja points are used in several areas of scientific computing, including polynomial approximation and eigenvalue computation. Their determination requires the maximization of a sequence of polynomials over a compact set in the complex plane. These computations can be quite time consuming when the number of Leja points to be determined is large. This paper introduces a new set of points, referred to as fast Leja points, that are simpler and faster to compute. An interactive example that illustrates the computation and distribution of fast Leja points is available at web site http://etna.mcs.kent.edu/vol.7.1998.

Key words. Leja points, polynomial interpolation, iterative methods, eigenvalue computation.

AMS subject classifications. 65D05, 65E05, 65F15, 65N25.

* Received March 2, 1998. Accepted June 30, 1998. Recommended by R. Lehoucq.
† Department of Mathematics, Texas Tech University, Lubbock, TX 79409. (baglama@math.ttu.edu). Research supported in part by NSF grant F377 DMR-8920147 ALCOM.
‡ Department of Mathematics, Case Western Reserve University, Cleveland, OH 44106. (dxc57@po.cwru.edu). Research supported in part by NSF grant DMS-9896073.
§ Department of Mathematics and Computer Science, Kent State University, Kent, OH 44242. (reichel@mcs.kent.edu). Research supported in part by NSF grants DMS-9404706 and ASC-9720221.