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Informal Scientific Report for Air Force Contract AFOSR-80-0226

July 1, 1981 - June 30, 1982

Richard S. Varga, Principal Investigator

The research conducted by the above principal investigator during the period July 1, 1981 to June 30, 1982, has resulted in the following research articles which have either appeared in print, or have been accepted in refereed journals in this period:

1. "On lacunary incomplete polynomials", Math. Zeit. 177 (1981), 297-314, jointly with E. B. Saff.

2. "Theorems of Stein-Rosenberg type. II. Optimal paths of relaxation in the complex plane", Elliptic Problem Solvers (M. H. Schultz, ed.), pp. 231-240. Academic Press, Inc., New York, 1981, jointly with J. J. Buoni.

3. "On the LU factorization of M-matrices", Numer. Math. 38 (1981), 179-192, jointly with D.-Y. Cai.

4. "An extension to rational functions of a Theorem of J. L. Walsh on differences of interpolating polynomials", R.A.I.R.O. Anal. Numer. 15 (1981), 371-390, jointly with E. B. Saff and A. Sharma.

5. "Theorems of Stein-Rosenberg type. III. The singular case", Linear Algebra and Appl. 42 (1982), 183-198, jointly with J. J. Buoni and M. Neumann.

6. "On the LU factorization of M-matrices: Cardinality of the set $P_n^g(A)$", SIAM J. Algebraic Discrete Methods 3 (1982), 250-259, jointly with D.-Y. Cai.

7. Topics in Polynomial and Rational Interpolation and Approximation, University of Montreal Press, Montreal, 1982.

8. "Breast cancer detection utilizing biostereometric analysis", Cancer Detection and Prevention 4 (1981), 589-594, jointly with C. W. Loughry, D. B. Sheffer, R. H. Hamor, R. E. Herron, R. A. Liebelt, and F. Proietti-Orlandi.

9. "A note on the shar⸱ ⸱s of J. L. Walsh's Theorem and its extensions for in⸱ ⸱ation in the roots of unity", Acta Math. Acad. Sci. Hung⸱ ⸱pear), jointly with E. B. Saff.

10. "On the overconvergence of complex interpolating polynomials",
J. Approximation Theory (to appear), jointly with J. Szabados.

In the execution of this project, there were no significant
departures from the research goals or anticipated personnel which
were outlined in the proposal.

Richard S. Varga/ae

Richard S. Varga/ P.I.
September 28, 1982