

68[X].—Kurt Arbenz, *Integralgleichungen für einige Randwertprobleme für Gebiete mit Ecken*. Promotionsarbeit. Eidgenössische Technische Hochschule, Zürich, 1958, 43 p.

This paper is devoted to the problem of finding a procedure, suitable in numerical application, for the conformal representation of a simply connected plane domain over the unity circle, in the more difficult case of a boundary with corners. A useful tool which has been employed by Todd [1] is the integral equation of Lichtenstein and Gersgorin, but it cannot be directly applied in this case. Modifications have been proposed by Stiefel and by Birkhoff, Young and Zarantonello [2].

The author generalizes theorems given by Radon, on the potential theory for domains bounded by smooth arcs. He makes extensive use of methods of functional analysis, with particular reference to the book of Riesz and Nagy [3].

The last seven pages contain numerical examples: the conformal representation of a square on the unit circle, obtained in a rather simple way with good accuracy; and the displacements in a square plate with built-in boundary. It appears that no use has been made of electronic computers, and it would be of interest to start numerical experiments on computers with the procedure here suggested.

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1. NBS APPLIED MATHEMATICS SERIES, No. 42, *Experiments in the Computation of Conformal Maps*, U. S. Government Printing Office, Washington, D. C., 1955.

2. *Proceedings of Symposia in Applied Mathematics*, v. 4, 1953, p. 117-140.

3. F. RIESZ & B. V. SZ. NAGY, *Leçons d'analyse fonctionnelle*, Third Edition, Gauthier-Villars, Paris, 1955.