ABSTRACTS OF PAPERS

SUBMITTED FOR PRESENTATION TO THE SOCIETY

The following papers have been submitted to the Secretary and the Associate Secretaries of the Society for presentation at meetings of the Society. They are numbered serially throughout this volume. Cross references to them in the reports of the meetings will give the number of this volume, the number of this issue, and the serial number of the abstract.

Announcement. Beginning with the report of the 1947 Summer Meeting, this BULLETIN will publish the abstracts of papers offered for presentation at a meeting of the Society as part of the report of the meeting. This arrangement will save considerable space in the BULLETIN due to the fact that it will no longer be necessary to print the title of a paper and the name of the author as part of the abstract and also as part of the report of a meeting. The present plan of publishing abstracts was inaugurated in 1930 in the expectation that abstracts would appear in the BULLETIN before the papers were read at meetings of the Society. Unfortunately a large proportion of the abstracts are not received in time to make such advance printing possible.

The Editors are pleased to announce in this connection that the Secretary of the Society plans to have available for distribution at as many meetings of the Society as possible mimeographed copies of the abstracts of papers to be presented. It is believed that such a distribution of the abstracts will be of considerable assistance to easier understanding of the papers presented.

ANALYSIS

288. M. Fekete: *On generalized transfinite diameter.*

The function $g(x)$ is called a generator function if (1) $g(x)$ is continuous for $0<x<\infty$; (2) $g(x)$ is strictly decreasing with x^{-1}; (3) $\lim_{x\to 0} g(x)=\infty$. Let C be an infinite limited-closed point set of a Euclidean space E_q of q dimensions and $g(x)$ a generator function. Put $C_{n,2}g(\delta_n)=$ minimum of $\sum_{1\leqq\mu<\nu\leqq n} g([P_\mu P_\nu])$ when $n\geqq 2$ and P_i, $1\leqq i\leqq n$, is a subset of C of $n\geqq 2$ points and $[P_\mu P_\nu]$ denotes distance of P_μ, P_ν. Then $\delta_n=\delta_n(C, g)$, the "diameter of order n of C with respect to $g(x)$" cannot increase as n increases and is positive for $n\geqq 2$. Call $\lim_{n\to\infty}\delta_n=\delta=\delta(C, g)$ the "transfinite diameter of C with respect to $g(x)$." In case $q=2$, $g(x)=\log x^{-1}$, δ coincides with the transfinite diameter introduced by the author (Math. Zeit. vol. 17 (1923)); for $q=3$, $g(x)=x^{-1}$, δ is the generalization of the former notion by Pólya-Szegö (J. Reine Angew. Math. vol. 165 (1931)). For arbitrary $q\geqq 1$ and $g(x)$, $\delta_2(C, g)=s=s(C)=$ the span of C. It is obvious that $\delta(C, g)\leqq\delta(D, g)$ whenever C is contained in D (monotonicity) whence $\lim_{\rho\to 0}\delta(C(\rho); g)\geqq\delta(C, g)$ when $C(\rho)$ is the ρ-neighborhood of C. It is easily shown that