SHORT COMMUNICATIONS
(Abstracts)

I

Section 1: Mathematical logic and foundations of mathematics.

Section 3: Number theory.

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Porubský, Š. /*Institute of Mathematics, Slovak Academy of Sciences, 814 73 Bratislava, Czechoslovakia*/ **On a class of uniformly distributed sequences**

This is a report on the joint work of T. Šalát, O. Strauch and myself. Given a sequence of positive integers $A = \{a_1 < a_2 < \dots\}$, denote by $u(A)$ the sequence of rational numbers of the following type

$$u(A) = \left\{ \frac{1}{a_1}, \frac{2}{a_1}, \dots, \frac{a_1-1}{a_1}, \frac{1}{a_2}, \dots, \frac{a_2-1}{a_2}, \dots, \frac{1}{a_n}, \dots, \frac{a_n-1}{a_n}, \dots \right\}$$

Our aim is to determine some properties of sequences A for which the sequence $u(A)$ is u.d. in $(0,1)$. Then we describe some metrical and topological properties of the system $\mathfrak{M}$ of all the increasing sequences A of positive integers for which $u(A)$ is u.d. in $(0,1)$. Some typical results:

1. The sequence $u(A)$ is u.d. in $(0,1)$ if and only if $\lim_{k\to\infty} a_k/(a_1+a_2+\dots+a_k) = 0$.
2. If $a_k = o(n^2)$ or $\lim a_{n-1}/a_n = 1$ then $u(A)$ is u.d. in $(0,1)$.
3. The system $\mathfrak{M}$ is closed under the operations of termwise addition and Cauchy multiplication, but not under the operation of termwise multiplication.
4. If $\rho: \mathfrak{M} \to (0,1)$, $\{a_k\} \mapsto \sum 2^{-a_k}$ is the dyadic transformation of infinite sequences of positive integers into the interval $(0,1)$ then

a/ $\rho(\mathfrak{M})$ has Lebesques measure zero

b/ the complement of $\rho(\mathfrak{M})$ has Hausdorff dimension zero

c/ $\rho(\mathfrak{M})$ is atmost a $F_{\sigma\delta}$ set of the first Baire´s category in $(0,1)$.