

WYKŁAD WYDZIAŁOWY

w ramach seminarium

ARYTMETYCZNA GEOMETRIA ALGEBRAICZNA

(organizatorzy: Grzegorz Banaszak, Piotr Krasoń)

Środa 7 oraz 14 marca 2018, godz. 12:00, sala A1-33

Wydział Matematyki i Informatyki UAM w Poznaniu

dr. hab William Mance

UAM Poznań

Normal numbers and connections with descriptive set theory and the study of algebraic varieties

Abstract: A real number is normal in base b if for all k every block of digits of length k occurs with relative frequency of b^{-k} in its b -ary expansion. In the first talk, we will discuss basic properties of normal numbers and connections with computability theory, ergodic theory, fractal geometry, set theory, and other areas of math. We will then use ideas from ergodic theory to extend the idea of normality to various forms of continued fraction expansions, β -expansions, Lüroth series expansions, Cantor series expansions, and others.

In the second talk, we will overview the theory of normality for Cantor series expansions, initiated by P. Erdős and A. Rényi in the 1950s. We will then discuss in detail a recent paper of D. Airey and B. Mance which, along with some recent developments in descriptive set theory, suggests a way that information about some algebraic varieties may be encoded in sets of normal numbers for some Cantor series expansions.