

# **Pseudorandomness, discrepancy, metric entropy: late research of Walter Philipp**

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Weak dependence theory grew out from problems in analysis and number theory such as the distribution of continued fraction digits (going back to Gauss), the metric theory of Diophantine approximation, lacunary series and the distribution of additive number theoretic functions. After the introduction of uniform mixing conditions by Rosenblatt (1956) and Ibragimov (1962), the theory turned into a more 'stochastic' direction and by now we have a very satisfactory theory both from the theoretical and applied points of view. On the other hand, weakly dependent structures in analysis and number theory are generally more complex than those of typical 'stochastic' objects and despite several attempts, no unified theory has been found to cover their basic probabilistic properties. Early research of Walter Philipp was motivated by such problems and understanding the basic dependence structures in analysis and number theory remained a constant interest for him in his whole career. In our talk we discuss a number of problems and results in this field and some joint work with Walter Philipp from the years 2002-2006.