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Nachruf auf Walter Philipp

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Walter Philipp passed away on July 19, 2006, unexpectedly after a mountain tour near Graz (Austria). He was widely known as a mathematician and as an alpinist. Walter Philipp was born 1936 in Vienna where he received his school education. From 1955 to 1960, he studied mathematics and physics at the University of Vienna. In this period, he also was an active and internationally widely known alpinist. For instance, he first climbed (jointly with the physicist Dieter Flamm) a famous route in the Civetta north-west wall, a mountain range in the Italian dolomites. After graduating 1960 with a Ph.D.-thesis (advisor Edmund Hlawka) at the

University of Vienna, Walter Philipp became an assistant there. His first papers were devoted to metric problems in uniform distribution theory and to abstract algebra, and he was strongly influenced by Johann Cigler and Wilfried Nöbauer. In the 1960's, he received his habilitation at the University of Vienna. From this period on Walter Philipp mainly worked in probability theory and probabilistic number theory. Very soon he became a Professor in the United States: first in Montana, and in 1964 he joined the faculty at the University of Illinois in Urbana-Champaign, where he retired in the year 2000. In the 1970's, the probability and statistics group in Urbana-Champaign had an excellent reputation world wide and was connected with the names of J. Doob and P. Wolfowitz. Walter Philipp was a member of the mathematics and statistics department of the University of Illinois in Urbana-Champaign and head of the statistics department for some years. He was also a foreign member of the Austrian Academy of Sciences, a Fellow at the Institute for Mathematical Statistics and a faculty member at the Beckman Institute for Advanced Science and Technology. Walter Philipp was internationally highly respected and a very active researcher, also after his retirement 2000, when he got particularly interested in the foundations of quantum mechanics. In this period he published several widely recognized joint papers with the physicist K. Hess, who also originated from Vienna. The mathematical work of Walter Philipp covers the fields of probability theory, number theory, and mathematical approaches to statistics. In particular, he is known as an expert for metric uniform distribution theory and limit theorems in probability theory. He has published about 80 research papers and a complete list of his publications is appended. A highlight of Walter Philipp's work is the solution of a well-known problem of P. Erdös in probabilistic number theory. This result was published in Acta Arithmetica [2] and contains a law of the iterated logarithm for the discrepancy $D_N(a_n x)$, where (a_n) is a lacunary sequence of positive integers:

$$0 < C_1 \leqslant \limsup_{N\to\infty} \frac{D_N(a_n x)}{\sqrt{N \log\log N}} \leqslant C_2 \tag{1}$$

for almost all real numbers x. Philipp's original proof is based on involved estimates for trigonometric sums using auxiliary results of Takahashi. Later, he established more probabilistic proofs of this result and developed various almost sure invariance principles and related uniform law's of the iterated logarithm, cf. [1]. An important survey on such results for partial sums of weakly dependent random variables is due to Philipp and Stout [3]. Walter Philipp interested many friends and colleagues for these kinds of problems and therefore many joint papers with different coauthors appeared. Among the coauthors we find I. Berkes, A. Dabrowski, H. Dehling, M. Denker, R.M. Dudley, R. Kaufman, M.T. Lacey, M.B. Marcus, G. Morrow, D. Monrow, R. Mück, H. Niederreiter, W. Stout. In 1994, Walter Philipp published a remarkable paper [4], where he could extend the law of the iterated logarithm (1) to a special class of non-lacunary sequences (a_n). This settled a problem due to R.C. Baker who formulated the problem for the sequences (a_n) which form a semigroup generated by finitely many coprime integers. This paper was a starting point for an intensive cooperation with I. Berkes and R. Tichy on related problems. The main point in these investigations is to combine ideas from the theory of diophantine equations with probabilistic methods, such as martingale inequalities and invariance principles. Walter Philipp visited Austria quite often in the last years, and he was a stimulating and very active colleague in the research projects "Diophantine Problems" and "Probabilistic Discrepancy Theory" (supported by the Austrian Science Foundation). Personally, I have lost a very good friend.

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