



This special issue is dedicated to

Professor Herbert Heyer

on the occasion of

his eightieth birthday

Preface

In a nicely worded paragraph in [1], Herbert Heyer describes one of the decisive moments in his mathematical career: his first encounter in 1959 with the late Professor Heinz Bauer, when he was a 23-year old student at the University of Hamburg, waiting for this newly appointed lecturer to deliver his first lecture on functional analysis. At that time Herbert had already studied for a year in Göttingen, and a further year in Vienna, before enrolling at Hamburg in 1958. This university was a mathematical powerhouse in the late 1950s and the early 1960s, with E. Artin, H. Hasse, E. Sperner and E. Witt as professors in pure mathematics, and L. Collatz and L. Schmetterer as professors in applied mathematics and statistics, respectively.

Herbert spent the 1959/60 academic year as a Fulbright scholar at the Department of Statistics in Berkeley. On his return to Hamburg he was attracted by L. Schmetterer's research, in particular his work on probability theory on non-abelian groups. However, Schmetterer left Hamburg in 1961, and Bauer was appointed as his successor. When in 1964 Herbert was admitted to Dr. rerum naturalium with a thesis "Untersuchungen zur Theorie der Wahrscheinlichkeitsverteilungen auf lokalkompakten Gruppe"¹, both Bauer and Schmetterer formed the supervisory team. At that time, students of mathematics in Germany either studied for a doctorate, or they sat the two parts of the state exam for mathematics teachers. Herbert did both, and in 1964 he also passed the second state exam. At German universities, every doctoral student had to study a major and a minor subject, and those training for the teacher's exam had to attend lectures in education and philosophy too. This resonates well with the fact that Herbert's intellectual interests extend far beyond mathematics. Friends are always impressed by his profound knowledge of German literature, especially his expertise on Thomas Mann, and his interests in the arts; of course here the influence of his wife Maria, a well-established artist in her own right, is clearly apparent.

In 1964 Bauer moved to the University of Erlangen, and Herbert was invited to join him as his "wissenschaftlicher Assistent", a position he held from 1965 to 1968, while also spending the academic year 1965/66 at the University of Washington at Seattle. Being awarded the pro venia legendi (Habilitation) in 1968 he became "Privatdozent" in Erlangen only for a short period, since in 1969 he was appointed "ordentlicher Professor" (full professor) at the Eberhard-Karls-Universität Tübingen, where he supervised twelve PhD students in total. He held this position until his retirement, when he became Professor emeritus. In 2004 he was awarded a Honorary Degree of the University of Debrecen (Hungary).

Herbert is a scholar with many international connections and collaborations. He was a visiting professor or a long term visitor at Tulane University and the University of California - La Jolla, and universities in Australia (Perth), France (Luminy), Switzerland (Lausanne) and Taiwan (Taipei). Of comparable importance are his close and frequent contacts with Japanese colleagues with many visits to Kyoto, Tokyo and Sapporo. These contacts led to a series of well-received German - Japanese symposia on *infinite dimensional harmonic analysis*, with several proceedings. The regular Oberwolfach meetings organized by him on "Probability Theory on Groups", together with the corresponding proceedings, have shaped

¹"Investigations on the theory of probability distributions on locally compact groups."

the field. He also served on the editorial boards of several leading journals; most notable is his devoted work for *Mathematische Zeitschrift* from 1973 to 2003, and *Journal of Theoretical Probability* from 1987 to 2006.

The scope of Herbert's research is too vast to describe here in detail. He has made many deep contributions to probability on locally compact groups, Polish groups and Gelfand pairs, with particular emphasis on Lévy–Khintchine/Hunt representations for infinitely divisible measures and associated convolution semigroups (and hemigroups), the central limit theorem, and the problem of embedding an infinitely divisible measure into a convolution semigroup. These are important themes in his classic treatise [2], which is still as relevant today as it was on publication, and whose influence has now spread to the engineering community, who realise that they need random dynamics on groups to study robotics, and the motion of complex molecules. In later years, Herbert became a pioneer in developing harmonic analysis and probability theory on hypergroups; the monograph [3] is a standard reference.

It is a great honour and privilege for us to dedicate this volume of “Communications on Stochastic Analysis” to Herbert Heyer on his 80th birthday.

References

- [1] Heyer, H.: *Heinz Bauer - Wissenschaftlicher Weg und Werk*, Jahresber. D. M. V. 105 (2003), 63–78.
- [2] Heyer, H.: *Probability Measures on Locally Compact Groups*, Springer-Verlag, Berlin - Heidelberg, 1977.
- [3] Bloom, W. and Heyer, H.: *Harmonic Analysis and Probability Measures on Hypergroups*, Walter de Gruyter Verlag, Berlin - New York, 1995.

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