

# Preface

Herbert Amann studied at the universities of Freiburg, Basel, and München in the early 1960s. In 1965 he received his doctoral degree under the supervision of Joachim Nitsche from the University of Freiburg. At that time, Herbert Amann's research revolved around the use of Monte Carlo simulations in connection with the resolution of elliptic problems [1]. His research interests then shifted toward the area of nonlinear integral equations, with a particular focus on the Hammerstein equation [2, 3]. In 1970 Herbert Amann moved from Freiburg to Bloomington, Indiana, and, the following year, to Lexington, Kentucky, where he held visiting professor positions. During the years spent in the US, his interests evolved toward nonlinear elliptic problems and the use of topological methods for their analysis. He was appointed full professor at the Ruhr-Universität Bochum in 1972 where he continued these investigations. Of this time are some of his most frequently cited and influential research papers about the topological degree [4, 5], the sub- and supersolution method [6, 7, 8], and multiplicity of solutions for nonlinear elliptic problems [9, 10]. Of outstanding importance is his consistently highly cited review article [11] on fixed point theory in ordered Banach spaces.

Herbert Amann moved to the Christian-Albrechts-Universität zu Kiel in 1978, and then to the Universität Zürich in 1979. During his tenure in Zürich, he continued his studies on qualitative features of nonlinear elliptic boundary value problems [12, 13], and then immersed himself in the study of nonlinear parabolic problems. A deep and careful understanding of the fundamental properties of general evolution systems together with the development of the interpolation-extrapolation framework were an important breakthrough in the study of nonlinear parabolic problems [14, 15, 16]. The full strength of this abstract approach is apparent in the dynamic theory for general quasilinear systems of parabolic type [17, 18, 19, 20]. A successful implementation in applications, like, e.g., coagulation-fragmentation processes [21], requires a thorough insight into the theory of function spaces and multiplier results, particularly also in the Banach space valued setting. Among the most important contributions in this context are [20, 22, 23, 24, 25, 35]. In recent years, Herbert Amann also contributed to the development of the theory of maximal regularity. His comprehensive view on complex structures allowed him to derive far-reaching results on Navier-Stokes equations, non-Newtonian fluids, image processing, and evolution equations with memory [26, 27, 28, 29]. Besides more than 100 research papers, Herbert Amann also has written important monographs [30, 31] and successful text books [32, 33, 34].

Herbert Amann has been a steady source of new ideas, and he has influenced many researchers. His unwavering dedication to research and teaching has been an example to all of his colleagues and students, in particular to his 24 doctoral students. In 2001 he became foreign corresponding member of the Real Academia de Ciencias Exactas, Físicas y Naturales, Madrid, and, one year later, received a Doctor Honoris Causa from the Universidad Complutense, Madrid. As of 2004, Herbert Amann is Professor Emeritus of the Universität Zürich.

During his long and ongoing career he has enjoyed the invaluable support of his wife, Gisela Amann.

The present volume contains original research papers and reflects the wide-ranging scientific interests of Herbert Amann. It is inspired by the conference “Nonlinear Parabolic Problems: In honor of Herbert Amann” held May 10–16, 2009, at the Banach Center in Bedlewo, Poland.

We are grateful to all the participants of the conference and all the contributors of this volume.

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Joachim Escher  
Leibniz Universität Hannover

Patrick Guidotti  
University of California, Irvine

Matthias Hieber  
Technische Universität Darmstadt

Piotr Mucha  
Warsaw University

Jan Prüß  
Martin-Luther-Universität  
Halle-Wittenberg

Yoshihiro Shibata  
Waseda University

Gieri Simonett  
Vanderbilt University

Christoph Walker  
Leibniz Universität Hannover

Wojciech Zajączkowski  
Polish Academy of Sciences

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