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Preface

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Alexander Belton

School of Engineering, Computing and Mathematics
University of Plymouth, UK
alexander.belton@plymouth.ac.uk

Uwe Franz

Laboratoire de mathématiques de Besançon
Université de Franche-Comté, France
uwe.franz@univ-fcomte.fr

We are honoured to present a special commemorative issue of Infinite Dimensional Analysis, Quantum Probability and Related Topics, in honour of two giants in this field who both sadly left us early in 2021: Professor Robin Hudson and Professor Wilhem von Waldenfels. The contributors to this issue include several of their close friends, collaborators and former students.

Fig. 1. Professor Robin Hudson

Robin Hudson was a pioneer in the field of quantum probability. His scientific contributions include the creation, with K. R. Parthasarathy, of the theory of quantum stochastic calculus, one of the first quantum central limit theorems, an early quantum di Finetti theorem, work on noncommutative stopping times, and the development of quantum stochastic double product integrals. John Gough has contributed some thoughts and reminiscences on Robin's work and life.

Fig. 2. Professor Wilhem von Waldenfels

Wilhelm von Waldenfels contributed to several subjects at the intersection of physics and mathematics, and was also a pioneering quantum probabilist. His work includes an explicit formula for the generator of a class of Feller semigroups (the Courrège-von Waldenfels theorem), quantum stochastic models for the absorption and emission of light, noncommutative central limit theorems, and applications of quantum white noise. He is also one of the inventors of the theory of Lévy processes on involutive bialgebras. Luigi Accardi has provided some reflections on Wilhelm's work and life.

In addition to these biographical works, we have a number of research articles. Marco Dozzi and René Schott write on non-commutative multifractional Brownian motion, whereas Romuald Lenczewski considers Motzkin path decompositions of functionals in noncommutative probability.

Properties of quantum Markov semigroups are investigated by Franco Fagnola and Damiano Poletti, and quantum dynamical semigroups also appear in K. R. Parthasarathy's work here. The contributions of Michael Schürmann, of Michael Skeide and of Roland Speicher discuss certain notions of non-commutative probability, primarily from an algebraic perspective. These three authors are former students of Wilhelm von Waldenfels and the topics discussed in these papers were motivated by his work. Kalyan Sinha initiates an investigation into quantum-probabilistic extensions of some classical ideas from statistical decision theory. Igor Vladimirov and Ian Petersen look at infinite networks of identical linear quantum stochastic systems from a control-theoretical point of view.

The variety of these articles demonstrates just a little of the impact that Robin Hudson and Wilhelm von Waldenfels had on the field and on so many other researchers.

Alexander Belton, University of Plymouth
Uwe Franz, Université de Franche-Comté
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