Preface to the special issue for the 75th birthday of Dieter Spreen

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This Festschrift is dedicated to the 75th birthday of the well-known mathematician Dieter Spreen, Emeritus Professor at the University of Siegen. Through his scientific work, Professor Spreen has made significant contributions to several areas of theoretical computer science and mathematics. His research spans Markovian decision processes, Markovian renewal programming, the theory of stochastic matrices, automata theory, computability and complexity theory, domain theory, lambda calculus, and type theory. In particular, he has worked extensively on the foundations of computable analysis and topology, providing insights into how these areas can be applied to real-world computations with continuous data. He has also contributed to developing domain theory, which is crucial for understanding the semantics of programming languages and the structure of computational processes. Additionally, his work in lambda calculus and type theory has helped to the formalization and understanding of functional programming languages. During his career, Professor Spreen has also coordinated various EU projects, the most recent being "Computing with Infinite Data," which concluded in March 2023, to produce logical methods and a sound foundation for developing exact and provably correct algorithms for computations with real numbers and other continuous data, which are increasingly important in safety-critical applications and scientific computation. He also established the ongoing workshop series "Continuity, Computability, Constructivity: From Logic to Algorithms," of which the 2022 edition in Padova celebrated his 75th Birthday.

With this Festschrift, we want to express our deep gratitude for his efforts in fostering a research community focused on computable and constructive analysis, mathematical logic, and computer science with engineering applications. The papers published in this volume constitute a witness of advancement in these strands of research.

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