



Editor's Preface for the Special Issue in Honor of Professor Roland Span's 60th Birthday

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Most of us know the highly accurate multiparameter equations of state for pure fluids and fluid mixtures associated with Professor Span and his team, as well as the respective measurement technology he has used to help advance the field. Throughout his career, Professor Span has remained committed to thermophysical property research. He studied mechanical engineering at Ruhr University Bochum, Germany, where he completed his PhD in 1992 and his habilitation in 1999, both in the field of thermodynamics. From 1993 to 2000, Professor Span headed the research group “Multiparameter equations of state” at the chair of thermodynamics of Professor Wolfgang Wagner. In 2001, he moved to the company ALSTOM Power Technology

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in Switzerland as project and group leader for gas turbine research. From 2002 to 2006, he was head of the chair of thermodynamics and energy technologies at the University of Paderborn, Germany, and since 2006, he has been head of the chair of thermodynamics at Ruhr University Bochum. Professor Span has been honored with several awards, including the Applied Energy Award for a Highly Cited Review Paper in 2017 and the SINTEF and NTNU CCS Award in 2019 for fundamental research in the field of reducing atmospheric carbon dioxide emissions through carbon capture, transport, and storage. Recently, he was awarded an Advanced Grant by the European Research Council to help lay the technical foundations needed for a hydrogen economy. In November 2023, he was awarded an honorary doctorate by the Norwegian University of Science and Technology in recognition of his significant contributions to thermodynamic properties research and his contributions to the development and implementation of future sustainable energy technologies.

Given the influence he has had on both of our careers, we were very pleased to be given the opportunity to become guest editors for this Special Issue in honor of Professor Span's 60th Birthday. One of us (EFM) met him at the 14th International Symposium on Thermophysical Properties in Boulder, Colorado, where he gave helpful guidance to a PhD student following his first presentation. For the other (MR), he was the primary PhD supervisor ("Doctor Father") and then an academic colleague whose mentorship was central to the career trajectory that followed. The 19 papers contributed to this Special Issue indicate that many others in our community hold Professor Span in a similar high esteem.

The papers in this Special Issue touch on some of the many areas of thermophysics in which Professor Span has had an impact. Topics include fundamental equations of state for pure fluids and mixtures involving CO₂; how equations of state and mixing rules are developed; experimental measurements of density, speed of sound, and solubility data; measurements and correlations of transport properties; and the advancement of experimental techniques. This collection truly "spans" the field of thermophysics and is most appropriate for both this journal and a Special Issue in honor of Professor Span.

The guest editors wish to thank the colleagues who have submitted excellent manuscripts and those who dedicated their time to provide valuable reviews. The success of this Special Issue shows the importance of the field of research that is the passion of Professor Roland Span.

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