

Preface

This special issue is dedicated to celebrating the retirement of professor Klaas van Breugel. The twelve papers in this issue were selected and extended from the forty papers in the proceedings of the workshop on concrete modelling and materials behaviour in honour of professor Klaas van Breugel during the RILEM week 2018, held in Delft. The papers in this special issue are contributed by his former PhD students and visiting scholars, during the period when Klaas was professor in the Concrete Structures group and later in the section of Materials and Environment, at the Delft University of Technology.

Professor Klaas van Breugel joined Delft University of Technology in 1979. From 1979 to 2002, he worked as a senior lecturer, associate professor and professor, respectively in the Concrete Structures group of the Department of Structural Engineering in the Faculty of Civil Engineering and Geosciences. During this period he supervised a large number of research projects on the behaviour of concrete protective structures under extreme loading conditions and thermal problems in hardening concrete structures. In 2002, he became the director of the Micromechanics Laboratory (the Microlab). From 2004 until his retirement, he was the head of the Section Materials and Environment, and the Chair of the concrete modelling and materials behaviour group.

In the past decades, Klaas's research interests covered the full range of concrete: from structures to the materials at multiple scales. Amongst his specific interests are design of concrete retaining and protective structures; design of concrete structures for imposed temperature and shrinkage induced deformations, early-age concrete on evolution of stresses and risk of cracking; numerical modelling of hydration and microstructure development of cement-based systems; durability and service life prediction of concrete structures and ageing of materials and structures. He linked materials sciences to structural behaviour, as well as fundamental (experimental) studies with numerical modelling. Especially his integrated numerical modelling for hydration to microstructure development of cement-based systems has led to the well-recognized HYMOSTRUC software. His self-healing materials concepts as solution for aging infrastructure has

resulted in the establishment of the Ageing Center for Materials, Structures and Systems of the TU Delft. Klaas has the reputation of a leading scientist in his field. His impressive publication record is clearly recognized in the concrete science community. Klaas was always very strict in research but very compassionate to his PhD students. His dedication to scientific research and his spirits were always an encouragement to all of us and will be in the future.

Finally, we would like to thank all authors and reviewers who contributed their time so generously to make this special issue possible.

Guang Ye
Jeanette Visser
Bert Sluys
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