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Viktor Mechtcherine
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Rheology and Processing of Construction Materials

RheoCon2 & SCC9

Springer

Rheology and Processing of Construction Materials

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Volume 23

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Preface

Processing of building materials is the technological backbone in the modern construction industry. Tailored use of rheology-based processes is not only a vital key for solving current technical challenges, including mixing, transportation, casting, or pumping over extreme lengths and heights, but also for the design of emerging and highly innovative technologies, such as digital fabrication. These processes are carried out under a broad range of deformation rates, which result in the necessity of profound knowledge about material rheological behavior applying advanced experimental and numerical methods.

Following the motto "Mastering rheology-based processes," the 2nd International Conference on Rheology and Processing of Construction Materials (RheoCon2) and the 9th International RILEM Symposium on Self-Compacting Concrete (SCC9) were held on September 8 to 11, 2019, in Radebeul, Germany.

The RILEM SCC series of symposia started in 1999 in Stockholm, followed by Tokyo in 2001, Reykjavik in 2003, Chicago in 2005, Ghent in 2007, Montreal in 2010, Paris in 2013, and Washington, D.C. in 2016 with a steadily increasing number of papers, participants, and interests from across the globe. The first RheoCon conference was successfully organized in Paris in 2013 in conjunction with the RILEM SCC symposium.

By combining these two parallel and closely interconnected conferences, we succeeded in creating a platform for exchanging experience and ideas about the development, testing, applications, and numerical simulation of fresh properties of cement-based and other building materials with emphasis on rheological properties.

The SCC9 symposium was organized in recognition of Professor Kamal H. Khayat's impressive scientific research achievements, exceptional engagement and contribution to concrete rheology, in general, and self-compacting concrete, in particular, as well as his sustained leadership in technical societies and technology transfer.

The conference proceedings consist of 76 peer-reviewed papers. Topics covered include materials science and design, the effect of additions and admixtures on rheology, rheological testing, mixing, processing and casting, additive manufacturing, and 3D printing. Furthermore, contributions deal with rheology and flow

modeling of SCC as well as its durability, structural performance, and fiber reinforcement.

The three-day conference program comprised of a selected panel of seven keynote speakers, and over 110 oral and 15 poster presentations. With participants from more than 30 countries, the conference triggered a vibrant discussion on ongoing research, networking, and sharing of innovative visions on the bright and sustainable future of the construction industry.

The latest scientific findings from the Priority Program 2005 Opus Fluidum Futurum – Rheology of reactive, multiscale, multiphase construction materials, sponsored by the German Research Foundation (DFG), were also presented at the conference. The program was initiated in the early 2018, and it was a unique opportunity for the members who represent an interdisciplinary research community to actively participate in the tandem conference.

We would like to express our sincere gratitude to the Honorary Advisory Committee and the Scientific and Technical Committee for its support in putting together a high-caliber technical program, providing peer review to numerous papers and promoting the conference worldwide. Our gratitude also goes to members of the Organising Committee and especially to Ms. Shirin Fataei for their dedicated efforts to ensuring a successful international conference.

Our special thanks to the conference sponsors: BASF, Deutsche Bauchemie, CEMEX, KNIELE, Omya, Maschinenfabrik Gustav Eirich, Schleibinger Geräte Teubert u. Greim, Thermo Fisher Scientific and UltraTest. Their generous financial support is greatly acknowledged.

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