

## Preface

The Scientific-Technical Conference on Material Problems in Civil Engineering (MATBUD'2018) is organised for the 8th time by the Chair of Building Materials Engineering of the Faculty of Civil Engineering at Cracow University of Technology, under the auspices of the Building Materials Engineering Section, part of the Civil Engineering Committee of the Polish Academy of Sciences.

This year we have received about 75 paper submissions, which were reviewed by national and international experts. 55 of the received papers have been accepted by the Scientific Committee for oral presentation at the conference and publication in its proceedings. The papers have been grouped into 8 chapters: i) *new generation concretes*; ii) *modelling of concrete behaviour and test methods*; iii) *waste products as components of sustainable building materials*; iv) *cement pastes and mortars*; v) *durability and environmental impact*, vi) *geopolymers and soil-cement materials*; vii) *structural materials performance evaluation*, and viii) *energy-efficient building materials*, which correspond to the main conference areas and sessions.

The primary focus of this conference are several areas of building materials engineering: development, processing, evaluation of properties and applications. As usual, MATBUD'2018 was dominated by topics related to cement binders and aspects of durability, but we observe a definite shift towards new sustainable material solutions. Among them is the search for robust and sustainable mineral materials for the additive construction and alkali-activated binders that meet the demanding mechanical and durability performance requirements of civil engineering applications. One of the best examples of awareness and respect for principles of sustainable development is the widespread use of waste materials and by-products for the production of mineral binders presented in session iii) *waste products as components of sustainable building materials*.

For this MATBUD edition, we have invited Dr Philippe Poullain to be the Keynote Speaker presenting 3-D printing technology and the Yhnova™ project. The additive manufacturing in construction is an emerging industry with numerous opportunities and challenges. Not only does this new paradigm for construction industry demand changes in construction processes, but it also requires new materials with specific rheological and setting properties. Watching with great interest the first successful applications, we cannot help asking: will the 3D printing technology be sufficiently efficient and affordable to be widely used in the construction industry? To what extent can 3D printing replace traditional building technologies?

Looking forward to seeing this technology on site, we would like to take the opportunity to express our gratitude to the originator and architect of these cyclic meetings – Professor Jacek Śliwiński, who has spared no time or effort in organizing MATBUD events with absolute commitment since its first edition in 1996, and also strongly supported the organization of this year's event. From the beginning of MATBUD, Prof. Lech Czarnecki has also played a key role in these events, devoting his time and sharing his knowledge with us as the Chairman of the Scientific Committee he successfully leads.

Warm thanks to all members of the Scientific Committee who have accepted papers for review on a voluntary basis as well as provided valuable suggestions during preparation of this conference. Thank you very much for your assistance!

We express our sincere gratitude to the chairperson of each conference session for smoothly conducting oral presentations of papers and coordinating discussions.

We are deeply indebted to EDP Sciences for excellent presentation of this conference proceedings through the MATEC Web of Conferences. The online publication of papers allows them to be distributed quickly and freely all over the world. We believe that this will significantly strengthen the impact of the MATBUD conference among the scientific community dealing with civil engineering materials.

On behalf of the organizing committee of MATBUD'2018, we would like to express our gratitude to all participants for their valuable contribution to the conference. We would also like to thank the authors for sending papers and for their patience with which they corrected them in compliance with the recommendations received from reviewers. Without your contribution, we would not have been able to appreciate so much this meeting and all the pleasant moments spent together in beautiful Cracow.

Izabela Hager, Tomasz Tracz

Chairpersons of MATBUD'2018

