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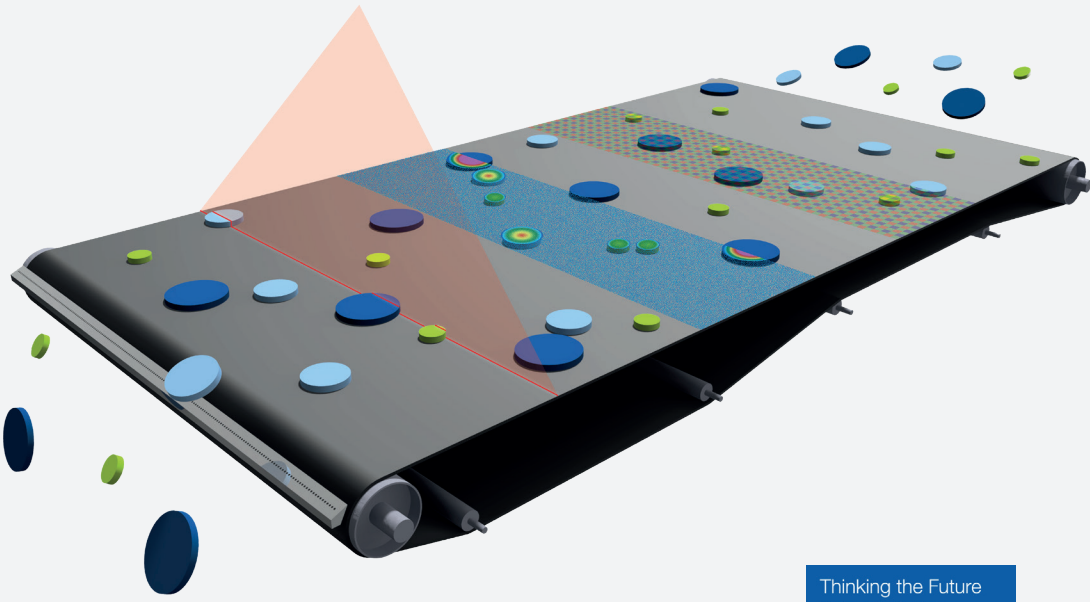
SBSC 2022

9th Sensor-Based Sorting & Control

Kathrin Greiff,
Hermann Wotruba,
Alexander Feil,
Nils Kroell,
Xiaozheng Chen,
Devrim Gürsel,
Vincent Merz (eds.)



Thinking the Future
Zukunft denken

**Kathrin Greiff, Hermann Wotruba,
Alexander Feil, Nils Kroell, Xiaozheng Chen,
Devrim Gürsel, Vincent Merz (eds.)**

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9th Sensor-Based Sorting & Control

April 13th - 14th, 2022, Aachen

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Prof. Dr. rer. nat. Kathrin Greiff; Prof. Dr.-Ing. Hermann Wotruba; Dr.-Ing. Alexander Feil; Nils Kroell, M. Sc.; Dr.-Ing. Xiaozheng Chen; Devrim Gürsel, M. Sc.; and Vincent Merz, M. Sc. (eds.)

A joint conference of Department of Anthropogenic Material Cycles (ANTS) and the Unit of Mineral Processing (AMR) of RWTH Aachen University.
April 13. – 14., 2022 in Aachen, Germany.

Preface

Dear participants of the SBSC 2022,

A key task for us and future generations will be to use finite resources more mindfully and sustainably. Both in mining and recycling, it is equally important that the efficiencies of processing procedures and chains are improved regarding recovery, yield, and product quality. In the last four decades, sensor technology has provided important development impulses for this in the aforementioned industries as well as in other industries such as the agricultural and food industries and is being used in more and more industrial applications. These developments were presented at the previous SBSC events and intensively discussed among the expert audience.

Developments in processing increasingly complex and larger amounts of data suggest that the current sorting function of sensors in plants can be combined with digital material flow characterization, and sorting performance can be improved in the future. These advancements can be enabled by the interplay of different sensors, the use of digital markers, and the enhanced description options through, for example, machine and deep learning.

A digital description of material flows could make personnel- and cost-intensive physical sampling largely superfluous in the future. Data information can also make processes scalable and thus allow an evidence-based evaluation of processes, which in many cases is not yet possible or only possible at great expense. If relevant input and output variables are measurable in real time, processes could be controlled according to these characteristics, and up- and downstream processes could be evaluated. In this way, considerable optimization potentials can be expected in terms of technical, economic, and ecological aspects.

To better utilize the potentials of sensor technology in the future, more attention must also be paid to the aspect of material flow management. In particular, the difficult handling of non-bulk materials requires technical innovations to achieve improved sorting results. However, once the challenges of material flow management and sensor-based material flow characterization have been solved, the already great

importance of sensor technology in the process plants of a then more sustainable industry will continue to increase, that seems certain.

These and other topics will await us at SBSC 2022. We look forward to exchanging ideas with you again after a break of four years!

Hermann Wotruba, Kathrin Greiff, Alexander Feil, Nils Kroell,
Xiaozheng Chen, Devrim Gürsel, and Vincent Merz

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