Press release

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Crystallization Award presented to Francesca Breveglieri for advances in the design and optimization of deracemization processes

Dr. Francesca Breveglieri is the winner of the Federation's Excellence Award in Crystallization 2023.

Her PhD thesis titled **"*Deracemization via batch temperature cycles - combining racemization and crystallization for chiral resolution*"** completed at the ETH Zurich, Switzerland, under the supervision of Professor Marco Mazzotti, was unanimously selected by the jury as the best submission in terms of breadth and depth, scientific impact and the industrial relevance, and the dissemination value. The jury particularly recognised and highly appreciated the excellent technical quality of the submitted material and the industrial relevance of the investigated topic. She also has an excellent track record of well cited publications in chemical engineering and crystallization journals, both as first author and as equal contributor. She attended and presented her work in several relevant conferences in the field of crystallization.

The thesis covers the topic of batch deracemization via temperature cycling, combining experimental and theoretical work and proposing practical strategies of design of crystallization processes that could be easily applied in an industrial setting on substances that fulfil the required criteria. The results presented in Dr. Breveglieri's thesis are of great importance and of great novelty for the scientific and industrial community interested in chiral resolution. The findings demonstrated that deracemization via temperature cycles is a promising novel method to attain enantiomer purification. Moreover, the advanced understanding of batch operations motivated the investigation of the corresponding continuous variants. Although for the industrial application of batch and continuous deracemization, more studies on process scale-up as well as monitoring methods are necessary, the achievements reported in this thesis led to significant progress in process understanding and optimization, thus paving the way for enhanced and facilitated development of both batch and continuous deracemization processes.

Nominating her for the Award, Prof. Mazzotti stated: “During all this work, that has been notable from the experimental, theoretical and modelling perspectives, she has also exhibited excellent capabilities of working independently, of collaborating with others and of mentoring students and young researchers, as reflected by the collaborative scientific contributions that she has produced.”

Dr. Francesca Breveglieri received her Diploma in Industrial Pharmacy (Pharmaceutical Chemistry and Technology), from the Università degli Studi di Ferrara, Italy. and her Pharmacy Diploma, from Ordine dei Farmacisti di Ferrara, Italy, in 2016. She then moved to ETH Zurich, Switzerland, where she obtained her PhD in Process Engineering and worked as a scientific assistant at the Separation Processes Laboratory. Since February 2022, Dr. Breveglieri holds the position of process engineer, R&D and Global Engineering - Drug Containment Solutions at SCHOTT Pharma AG, Sankt Gallen, Switzerland.

The Award was presented during the 22nd International Symposium on Industrial Crystallization (ISIC 2023) which was held in Glasgow, United Kingdom, on 5-8 September 2023.

Ends

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Notes to media:

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