MS30 Advanced porous materials : MOFs, COFs, SOFs....and what else?

MS30-02
Multivariate frameworks and the eye of the beholder
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Abstract
Multivariate frameworks are reticular structures where specific sites can host chemically different building block alternatives. Or… are they?
The ever-astounding diversity of reticular structures such as metal–organic frameworks (MOFs) entered new territories since chemists started to explore the synthesis of crystalline MOFs with aperiodic composition.[1] Most importantly, short-range sequences of functionalities in these so-called 'multivariate' frameworks were found to confer functions otherwise unachievable.[2] While the resulting enthusiasm drives the pursuit of better synthetic control and the search for new functional behaviours, crystallographers and structural chemists might wonder: What precisely is multivariation? Is it limited to composition? How can we classify multivariate frameworks according to sensible and useful criteria?[3]
This contribution will delve into these still largely unanswered questions, thereby highlighting another prominent issue in reticular chemistry: How can we characterize framework multivariation? Our recent research on single-crystal total scattering of MOFs offered some insights on how all these questions could be addressed, leading to a renewed viewpoint on reticular materials and their structural understanding.

References
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