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Title: Precision of measured isotope ratios: Why is it important and how can it be improved

Abstract: Trust in measurements performed by a laboratory is an important feature of global trade. Therefore, measurement capabilities need to be assessed regularly and it is essential to know the best representation of the "true value" of the measurand in the test material. This can be a material used for proficiency testing or a Certified Reference Material (CRM). Isotope dilution mass spectrometry is a valuable tool in this respect because it can deliver bias-free estimates with high precision.

In this presentation I will show why highest precision in the measurement of isotope ratios is important and how this precision can be improved by a novel approach in LC-MS. By example of Patulin, a secondary toxic metabolite of molds of *Aspergillus* and *Penicillium* species, the "classical" approach of SRM acquisition with consecutive scan events, integration of extracted ion chromatogram peaks, and dividing the peak areas, is compared to the new approach. Through peak parking in a sample loop with slow infusion and scan-based isotope ratio calculations a significant 10-fold improvement in precision could be realized.