



Contribution ID: 36

Type: **not specified**

”Classic” DoE vs. Bayesian Optimization / Active learning:

Friday, 30 May 2025 11:35 (20 minutes)

Design of experiments is one of the main Quality by Design (QbD) tools within the process industry. However, “classic” DoE is increasingly challenged by modern techniques such as Bayesian Optimization and Active Learning.

These innovative methods are promoted as faster and more intuitive, offering greater flexibility in experimentation.

In this talk, I will provide a direct comparison of classic DoE and Bayesian Optimization performance in typical R&D and process optimization settings. I’ll consider experimental effort (the number of experiments required), practical aspects, and the quality of information generated. This comparison will help determine when each approach is most appropriate.

Spoiler: My impression is that the perception of classic DoE as requiring extensive experimental effort is partly influenced by the philosophy of its practitioners. Therefore, I advocate for a “back-to-the-roots” approach: a strongly risk-based deployment of sequential DoE. I look forward to discussing these points with you.

Type of presentation

Contributed Talk

Primary author: Dr FEILER, Stefanie (FHNW School of Life Sciences)

Presenter: Dr FEILER, Stefanie (FHNW School of Life Sciences)

Session Classification: Session

Track Classification: Spring Meeting