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Simulations, Post-Processing and Visualisations of Detector Cooling Systems

Monday, 27 October 2025 15:00 (30 minutes)

CO_2-based two-phase pumped loop systems are now the de-facto solution for Detector cooling at CERN. The scope of these systems grows ever larger, and with it, so does the complexity of the underlying technology

For the past decade-and-a-half, Matlab has been our one-stop shop for simulations, post-processing, data analyses and data visualisations. Recently, we have begun a piecemeal migration of some of this rich toolbox to Python. Python allows easy extraction of data from NXCals, including in Swan, and has a rich plotting library.

In this talk, we present the different tools we use to simulate component behaviour, extract and post-process data, and conduct visualisations for plotting and understanding system performance.

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