

# Machine learning and advanced accelerator optimisation at GSI/FAIR

*Tuesday, 29 October 2024 16:30 (15 minutes)*

Accelerator laboratories across the globe are investigating numerous techniques to achieve this goal, including classical optimization, Bayesian optimization (BO), and reinforcement learning. This presentation will provide an overview of recent activities in these domains at GSI. The implementation of the Generic Optimization Framework & Frontend (GOFF) at GSI, supported by the EURO-Labs project, has significantly enhanced workflow, requiring only a few hours to adapt to new accelerators and optimization tasks. The beam loss during injection into the SIS18 was reduced in 15 minutes. GOFF has also been effectively utilized at the GSI Fragment Separator (FRS) for beam steering and focusing.

**Primary authors:** KAZANTSEVA, Erika (GSI Helmholtzzentrum für Schwerionenforschung GmbH(GSI)); APPEL, Sabrina (GSI Helmholtzzentrum für Schwerionenforschung GmbH(GSI)); MADYSA, Nico (GSI Helmholtzzentrum für Schwerionenforschung GmbH(GSI))

**Presenter:** KAZANTSEVA, Erika (GSI Helmholtzzentrum für Schwerionenforschung GmbH(GSI))

**Session Classification:** Session