



Contribution ID: 111

Type: **Poster without speed talk**

First Online Reinforcement Learning on Hardware at a Particle Accelerator

uture particle accelerators will challenge the capabilities of current control systems. One of the possible solutions is the use of Machine Learning techniques. While several algorithms have already been implemented and are in current operation, some specific problems will require novel hardware systems in order to satisfy throughput and latency constraints.

In this study, we employ the KINGFISHER platform developed at IPE, which is based on the innovative Xilinx Versal ACAP, to effectively control horizontal betatron oscillations caused by a kicker at KARA. This control is achieved through the turn-by-turn action of a Reinforcement Learning agent. Notably, this is the first instance of online agent training implemented on hardware at a particle accelerator.

Speed Talks

I am unable/unwilling to give a speedtalk.

Primary author: SCOMPARIN, Luca (KIT IPE)

Presenter: SCOMPARIN, Luca (KIT IPE)

Session Classification: Poster session

Track Classification: Detector Technologies and Systems