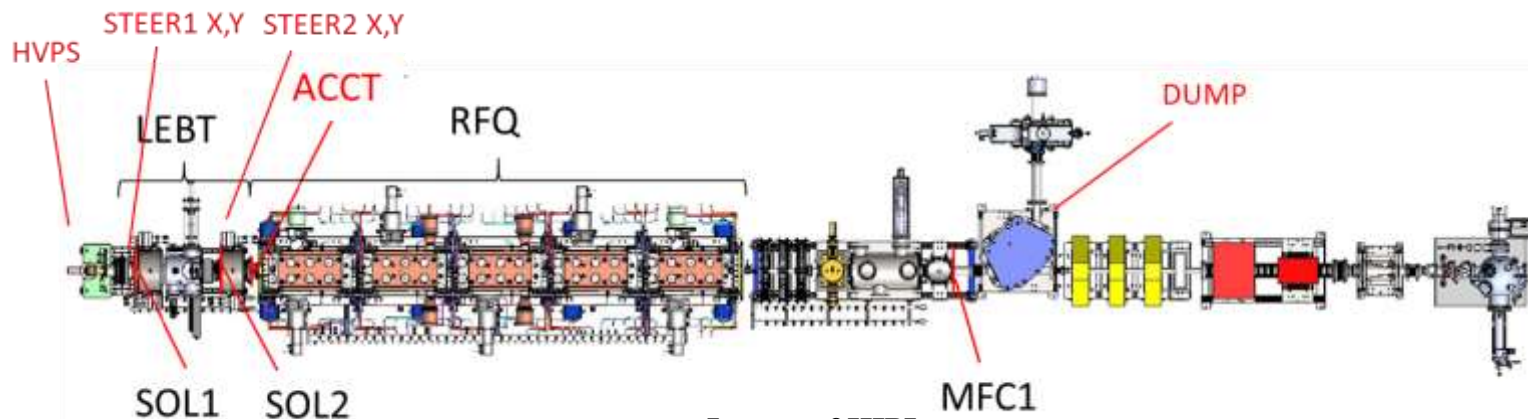
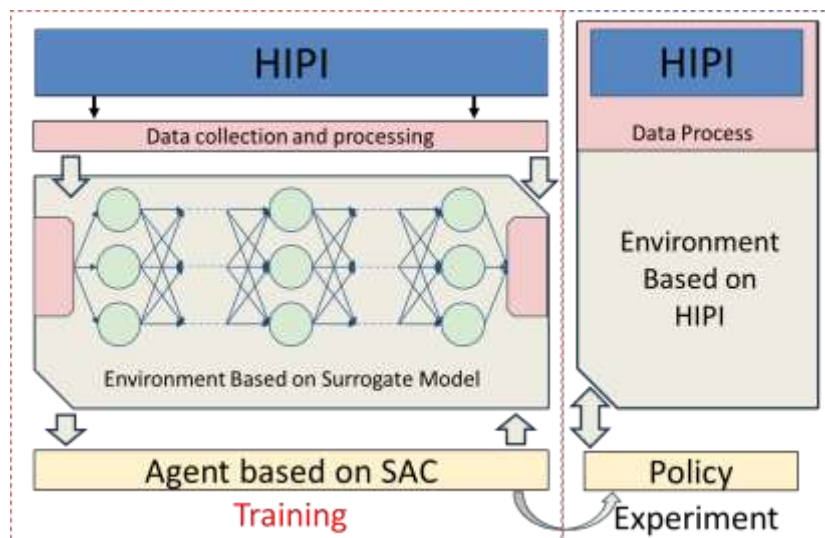


• RL-Based Control Strategies for HIPI Accelerator



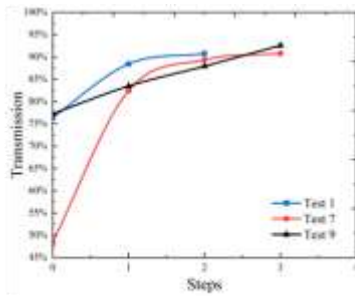
Layout of HIPI



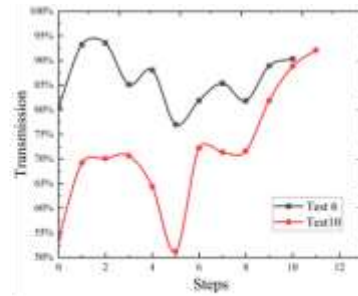
- ◆ Data Process
- ◆ Build a Surrogate Model
- ◆ Agent Trained Based on Surrogate Model

Target	High RFQ transmission with low beam loss in LEBT
Input Parameters	The current strength of the following 6 electromagnets, Solenoid 1, Solenoid 2, Steer 1X,Y, Steer 2 X,Y
Output Parameters	Current of ACCT and DUMP

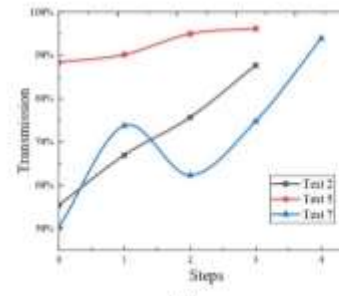
• RL-Based Control Strategies for HIPI Accelerator



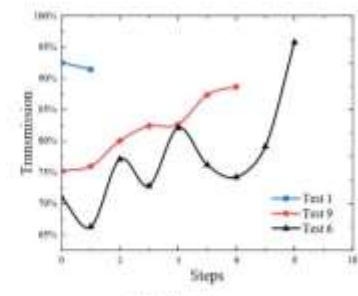
(a)



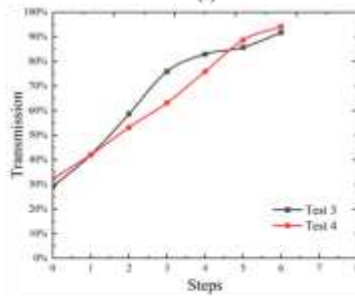
(b)



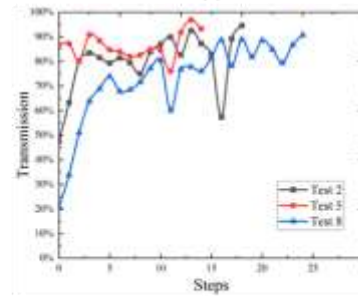
(c)



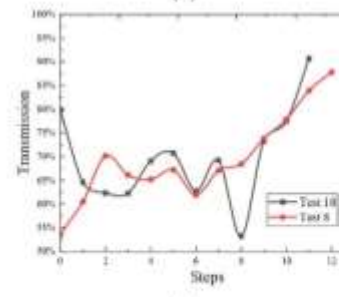
(d) longlong



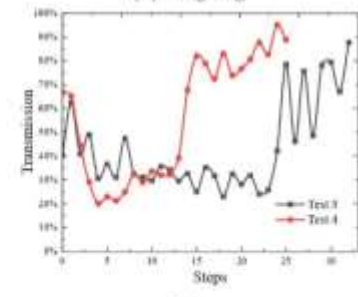
(e)



(f)



(g)



(h)

The Random Initial Values Policy Test with the Environment Based on Surrogate Model

The Random Initial Values Policy Test with the Environment Based on HIPI

The control strategy based on RL is faster than manual tuning in beam commission, completing dozens of minutes manual tuning **in minutes**.