Start-up regime at IBR-2M exhibits certain instabilities of oscillatory nature, deterministic, dependent on parameters that we aim to uncover.

NARX neural prediction of oscillational instability at the IBR-2M reactor

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We data conditioned (Savitzky-Golay, O_{μ}): - pulse power,

- compensator-2 block position,
 - AR position,
 - OPO-DPO phase.

 \Rightarrow obtain the speed of variation D,

acceleration, pedestal

90 60780 60620 60640 60680 60700 60720 60760 60660 60740 time [s]



Used these parameters, of quantities that have have an impact on the pulse power, with their (recent) history to predict pulse-power speed of variation.

Trained network on 50 instability windows of 30s, and 50 varied other 30s time windows, of the 2018 runs.





