

## Why dynamic measurements are crucial for time-dependent modelling and control?

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In the past years, a great number of system identification experiments have been performed to study dynamic responses of the plasma because of deuterium puffing, impurity puffing, and heating modulations particularly focusing on the exhaust but also the core density. In this presentation, I will explain how and why we choose for certain dynamic data acquisition methods giving both simulation and some experimental examples+. This will make also clear why dynamic measurements are crucial for time-dependent modelling of the exhaust and an essential ingredient for the control the exhaust.

\*See author list of S. Coda et al. 2019 Nucl. Fusion 59 112023

+Derks et al. Development of real-time density feedback control on MAST-U in L-mode”, FED, 2024

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