OVERVIEW OF FIRST RESULTS FROM MAST UPGRADE

UK Atomic Energy Authority

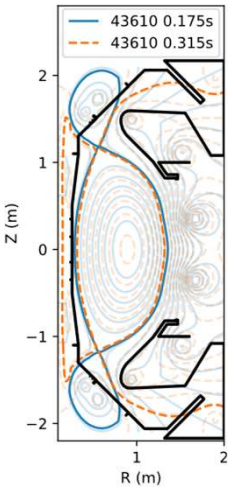
The construction of MAST Upgrade is complete and the 1st physics campaign is now underway

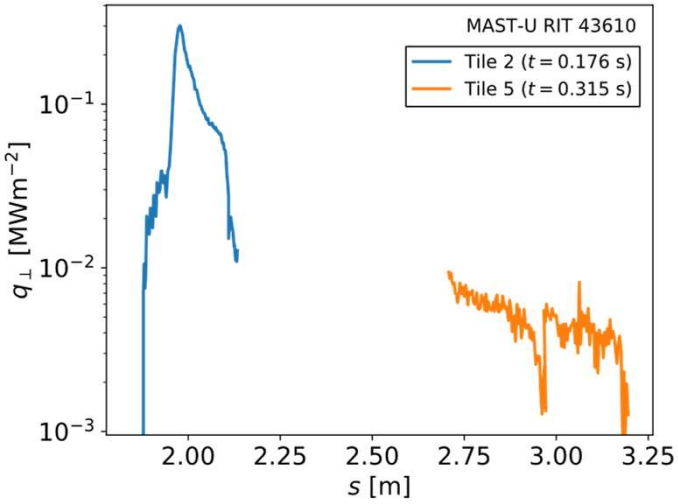
Following first plasma in October 2020, there was rapid progress to physics operations

Milestone	First plasma	Vertical position control	First diverted plasma	First beam into plasma	Plasma current feedback	First beam into plasma	Two beams into plasma
Date	27/10/20	22/1/21	29/1/21	10/2/21	12/2/21	19/2/21	24/2/21

Key achievements include:

- Good vacuum conditions (main chamber pressure 2x10^{-8} mbar)
- A new fast machine protection system using FPGAs is operating routinely
- Reliable plasma breakdown achieved, guided by semi-empirical modelling [1]
- Plasma scenarios with Ip flat-top period longer than 300ms and with ohmic H-mode phases developed
- Conventional and Super-X divertor configurations developed. Outer target heat flux substantially reduced in Super-X configuration





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