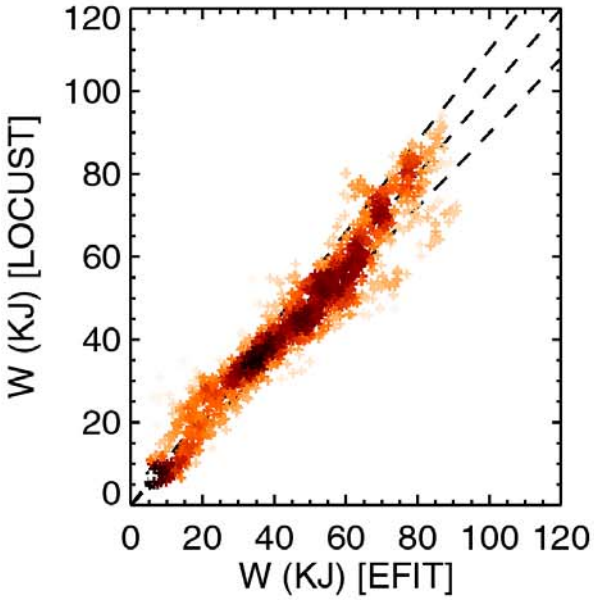
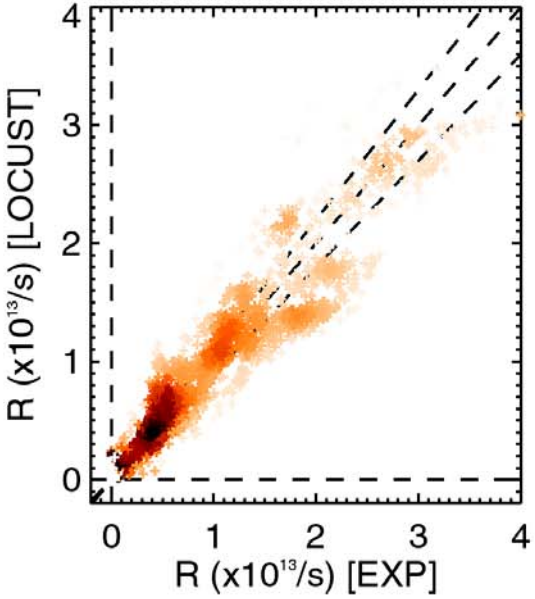
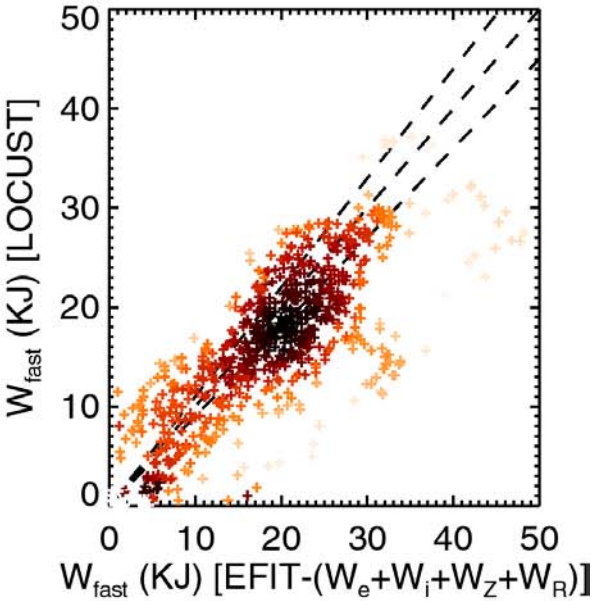
Fast ion evolution agrees with modelling (LOCUST)



Plasma Energy



Neutron Rate



Fast Ion Energy

Fast ion energy typically ~15% but up to 50% of W_{MHD} in low density strongly heated discharges.

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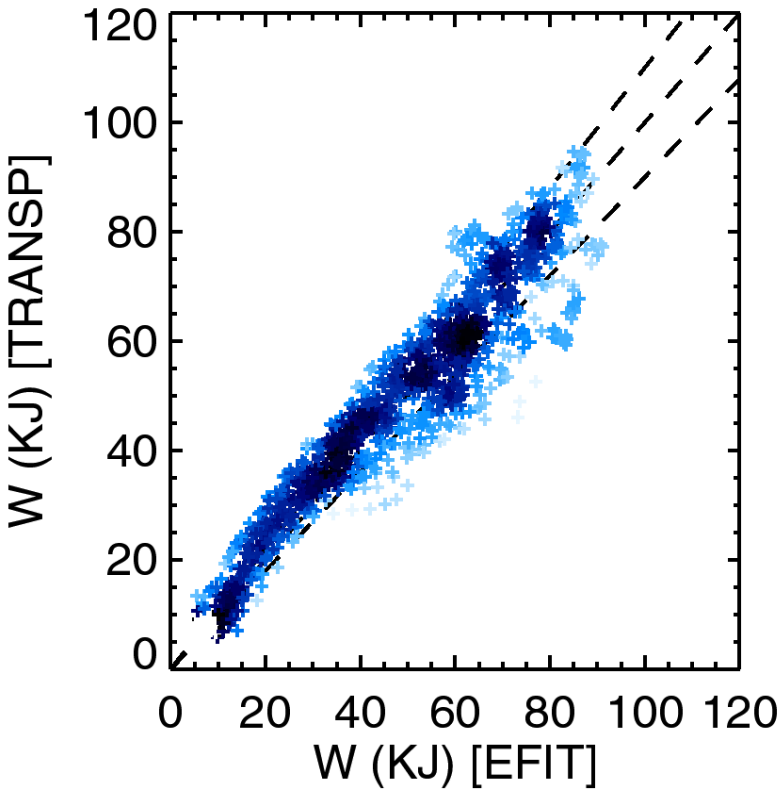
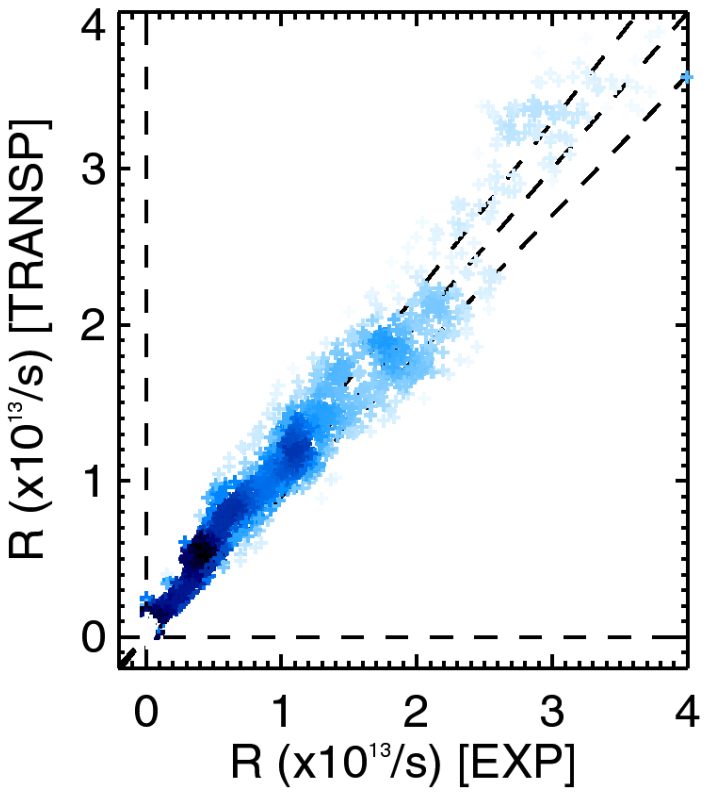
TRANSP stored energy & neutron rate agree with experiment





Comparable systematic discrepancies to LOCUST code

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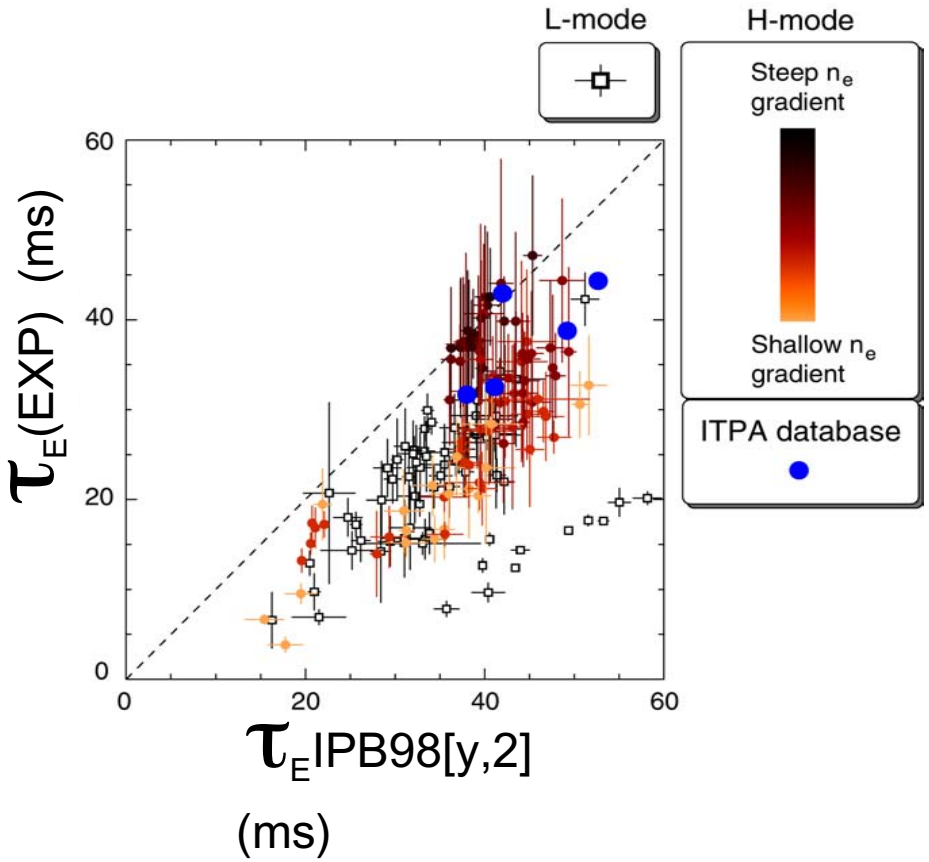
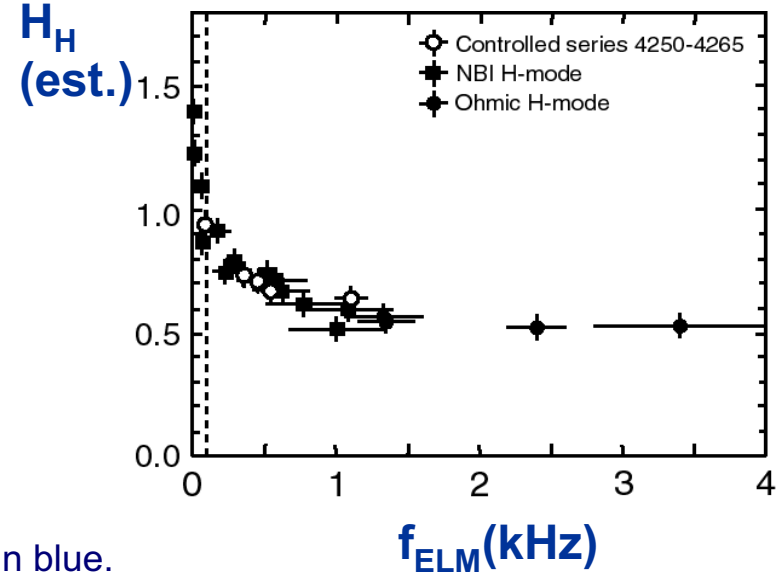
Global Confinement Scaling in MAST



Transient H-mode discharges shown in (orange-black).

Colour indicates degree of H-mode, given by the density gradient (due to ELM frequency - Fishpool like scaling of H_H).



Quasi Steady State discharges in ITPA database shown in blue.

Care needs to be taken with fast ions
(~15-50% of total stored energy) and derivatives etc.

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- *Not clear if dataset includes recent discharges with ITBs (e^- and ion)*

B. Lloyd / MAST overview / STW03

Opening and Closing Remarks by UKAEA Directorate

- Frank Briscoe *(Acting Head, Euratom/UKAEA Association)*
  - UK govt. now favors “fast track” for fusion *(King report)*
    1. ITER
    2. IFMIF
    3. STs - including major upgrade (£20–30M) to MAST in 2 – 3 years
       - relevance to tokamaks, materials test facility (CTF), concept improvement
- Prof. Sir Chris Llewellyn Smith (FRS) *(newly appointed Culham director, succeeding Derek Robinson)*
  - exciting times because of UK govt. attitude: “Is this a dream?”
    - resources now come from a larger basket including other fields
  - we must avoid duplication
  - make fusion better known: others are suspicious of our claims
    - politicians will ask opinions of others, including our opponents