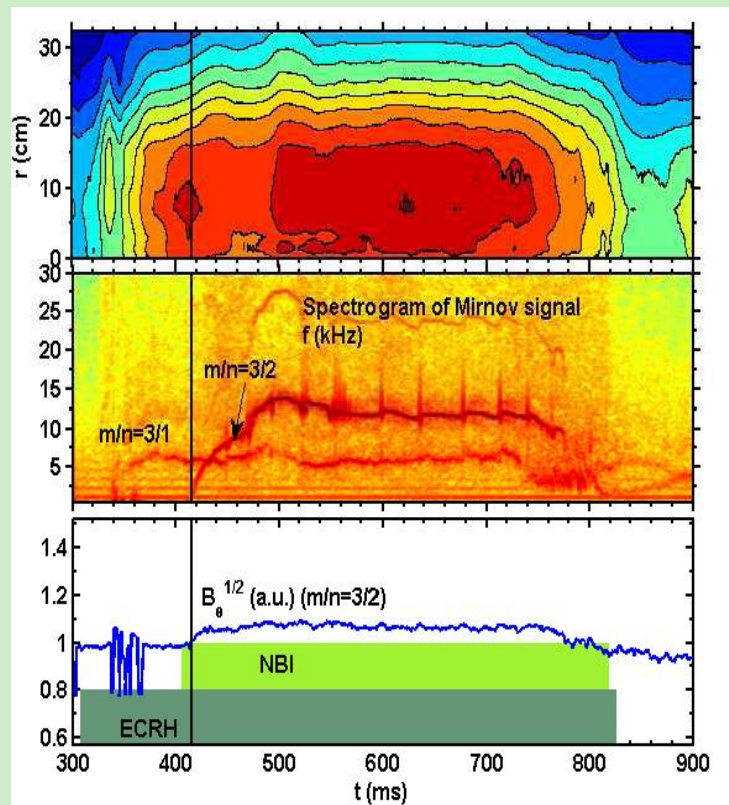


In the HL-2A tokamak, the characteristics of the spontaneous onset NTM ($m/n=3/2$) without any detectable extrinsic MHD events such as sawteeth, fishbones, edge localized modes (ELMs) have been investigated.



For understanding the experimental results, a modeling has been carried out based on a reduced MHD model.

- the $3/2$ mode is linearly unstable when the bootstrap current fraction is larger than 13%;
- the growth of the mode increases even if the small island width is $w/a \sim 0.04$ (predicted by using the bootstrap current fraction $\sim 12\%$).

The results suggests that the intrinsic error field is a suitable candidate for triggering the NTM without any precursor on HL-2A.