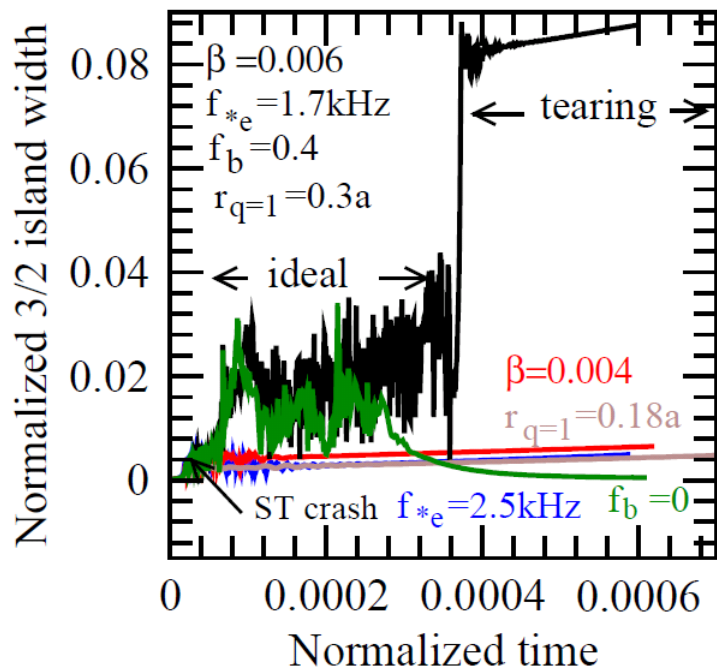
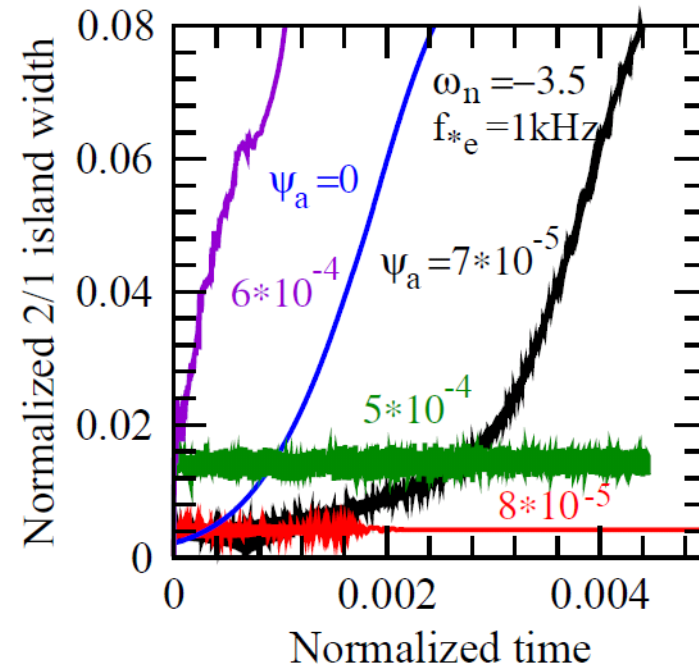


# NTM Excitation by Sawtooth Crashes and the Suppression of their Onset by RMP

Q. Yu, S. Günter, K. Lackner, E. Strumberger, and V. Igochine



Time evolution of normalized  $m/n=3/2$  island width. The  $3/2$  NTM is triggered by sawtooth (ST) crash (black curve) for a larger  $\beta$  value, bootstrap current density ( $f_b$ ), ST amplitude ( $r_{q=1}$ ), or a lower electron diamagnetic drift frequency ( $f_{*e}$ ), but isn't in opposite cases (other curves). After its onset, the  $3/2$  mode begins as an ideal mode before  $t=0.00036 \tau_R$  ( $\sim 8\text{ms}$ ) and changes into a tearing mode afterwards.



Time evolution of  $m/n=2/1$  island width for various normalized static  $2/1$  RMP amplitude  $\psi_a$ . The island grows for a too small or large  $\psi_a$ ,  $\psi_a = 0$ ,  $7 \times 10^{-5}$  or  $6 \times 10^{-4}$ , but is suppressed for  $8 \times 10^{-5}$  -  $5 \times 10^{-4}$ . The plasma rotation is in the  $\text{co-}I_p$  direction with a normalized (to  $\omega_{*e}$ ) electron fluid frequency  $\omega_n = -3.5$ , being more effective for the island suppression by RMP than the rotation in counter- $I_p$  direction.