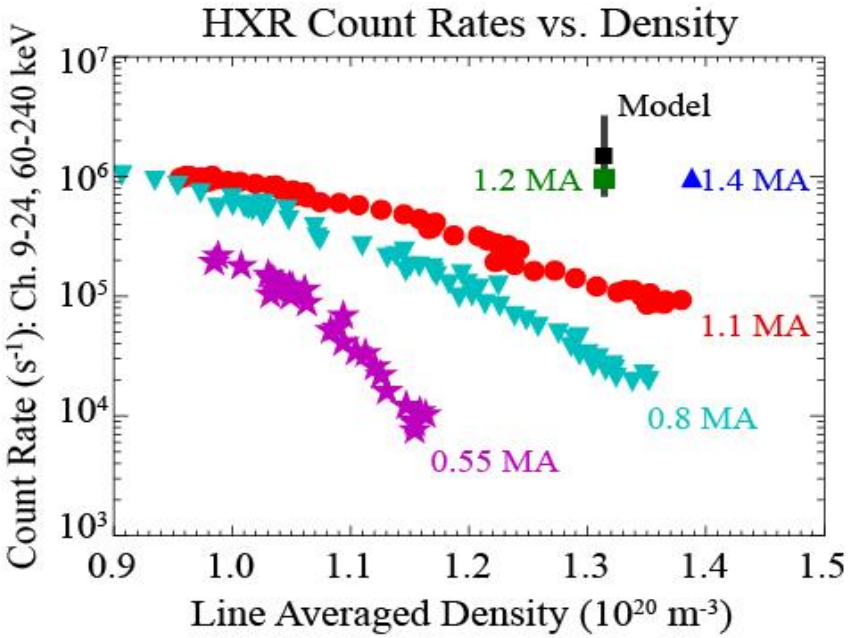
Efficient lower hybrid current drive is demonstrated at high density in a diverted plasma with a proper management of the SOL plasma.

Alcator C-Mod

- At high density, current drive efficiency ($\eta = n_e I_p R_0 / P_{LH}$) and fast electron production rates deteriorate anomalously
  - "LH density limit problem" observed across the tokamaks
- On C-Mod, parasitic wave interactions with the SOL plasma is suppressed in a high current plasma with a narrow SOL width and a low level of SOL turbulence.
- A recovery of $\eta \approx 2.5$ (10^{19} A W^{-1} m^{-2}) and improved hard X-ray production rates[1] are observed, consistent with modelling



- High-field-side launch[2] in a double null configuration may provide an optimum SOL condition, in addition to improved core wave physics and launcher survivability.

[1] Baek, et al., EX/P6-28
[2] Wallace, et al., FIP/3-3