

IMPLICATION OF SLOW VERTICAL MOTION DURING DISRUPTION

- At conventional aspect ratios ($\sim 3 - 4$, say) the most serious vertical disruptions occur when there is a vertical displacement followed by a current quench. This is because a large toroidal current is inductively transferred into the bottom (or top) of the vacuum vessel and interacts with a large poloidal field from a nearby divertor coil.
- In the low-aspect-ratio NSTX, however,
 1. A smaller current in the “divertor coil” is needed to form an elongated plasma.
 2. Less toroidal current is induced in the bottom (or top) of the vacuum vessel because of the slow vertical drift.

Therefore vertical disruptions are more benign.