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FROM: C NEUMEYER
SUBJECT: NSTX OH CURRENT INCREMENT DUE TO PLASMA DISRUPTION

Reference: NSTX-CALC-11-08 "Plasma Disruption Calculation"

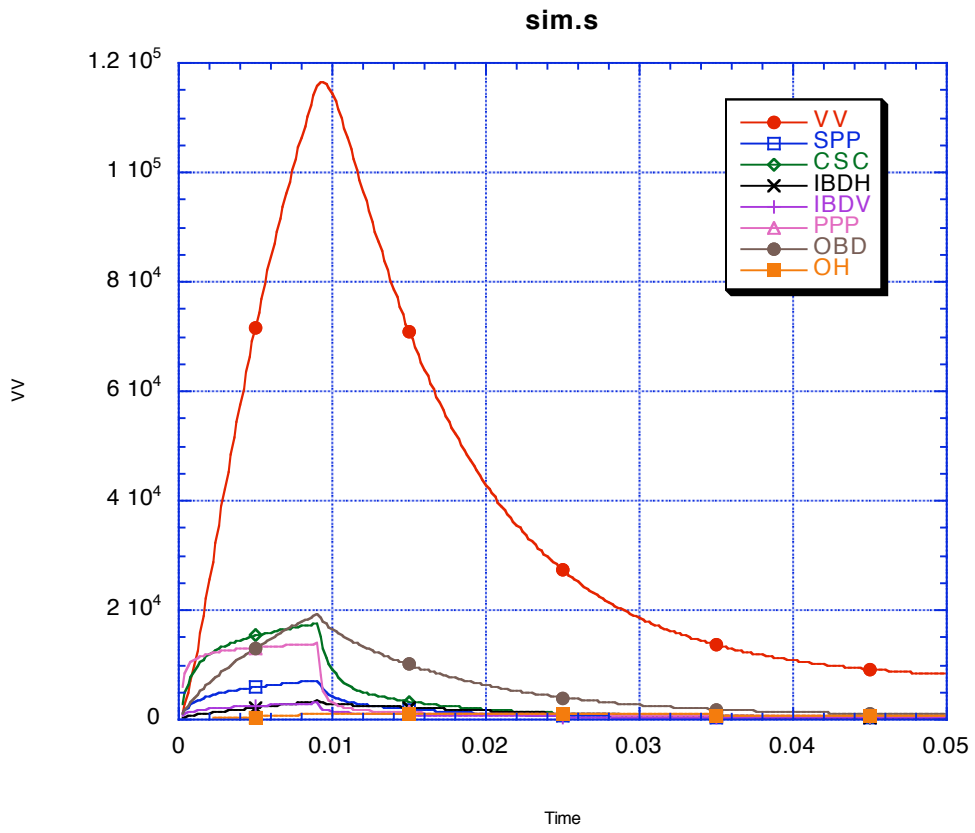
Per our discussion I report herein the results of my simulation of the effect of a plasma disruption on the OH current, using LRSIM. The methodology is identical to that described in the reference, except that the OH coil is short circuited.

Assumptions:

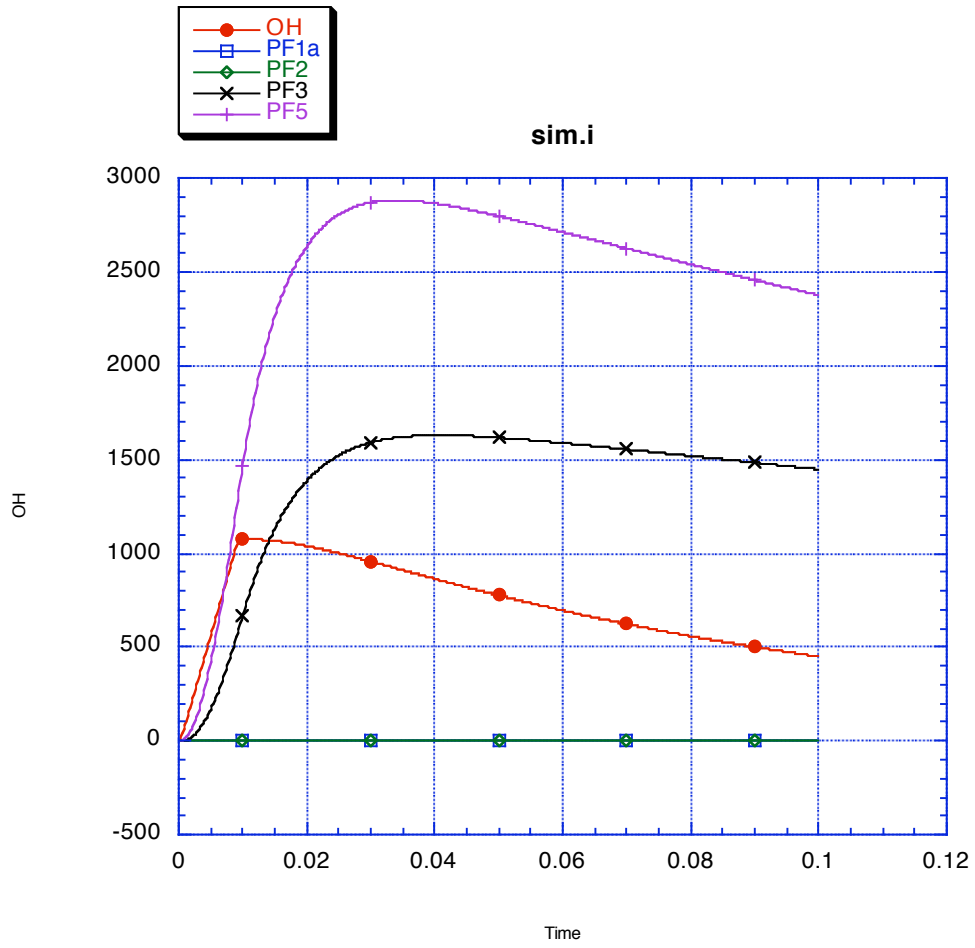
- Ip decay from 1.5MA to 0 in 9ms
- Plasma represented by two cylindrical conductors $r=0.8\text{m}$, $z=\pm 0.6\text{m}$, $a=0.6\text{m}$
- OH, PF3, PF5 short circuited
- PF1A, PF2 open circuited
- Vacuum vessel (VV), center stack casing (CSC), inboard divertor horizontal (IBDH) and vertical (IBDV), outboard divertor (OBD), secondary passive plate (SPP), and primary passive plate (PPP) represented by a total of 66 filaments

Results:

The following graphs show the current waveforms. The increment in OH current is approximately 1.1kA.



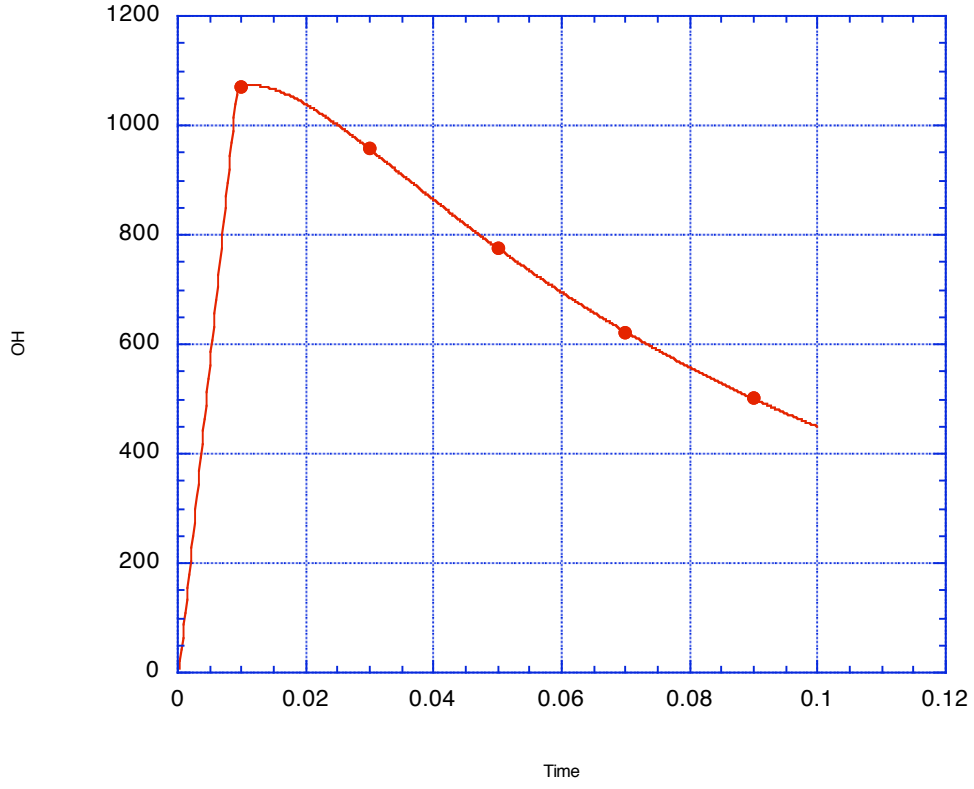
Passive Structure Currents (summed over half plane) and OH current



Coil Currents

—●— OH

sim.s



OH Coil Current