



Updated stability thresholds

X. Buffat, N. Mounet

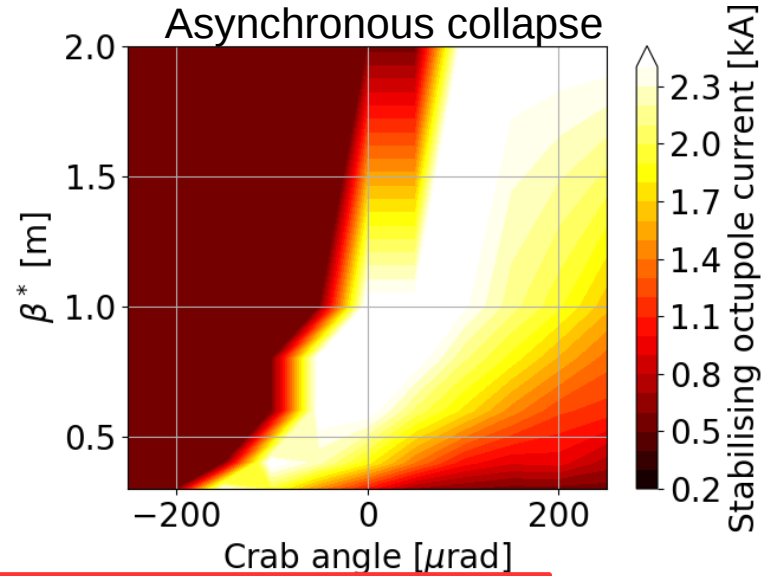
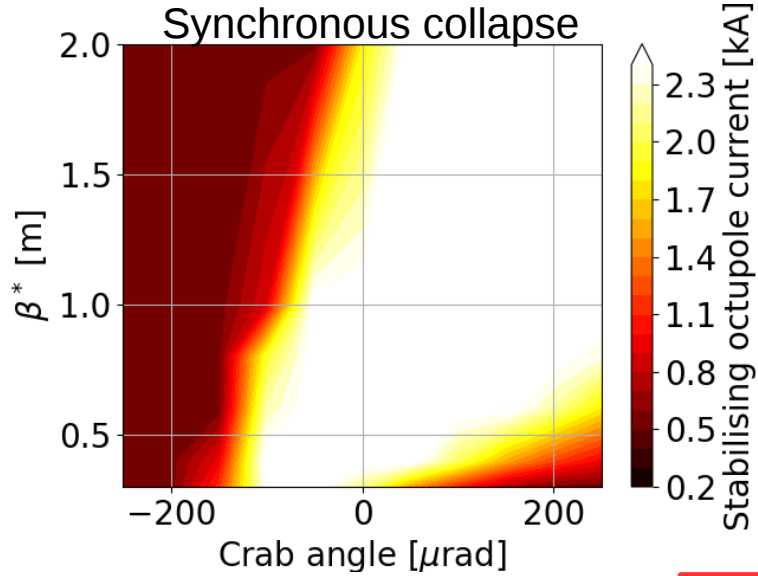


HL-LHC WP2 meeting 21.04.2020

Content

- Updated thresholds including
 - Beam-beam effects
 - Residual optics errors

Positive polarity

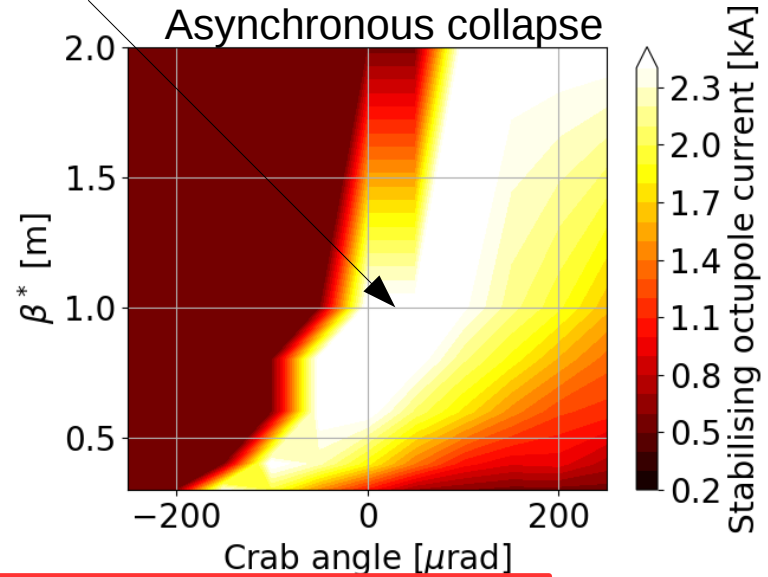
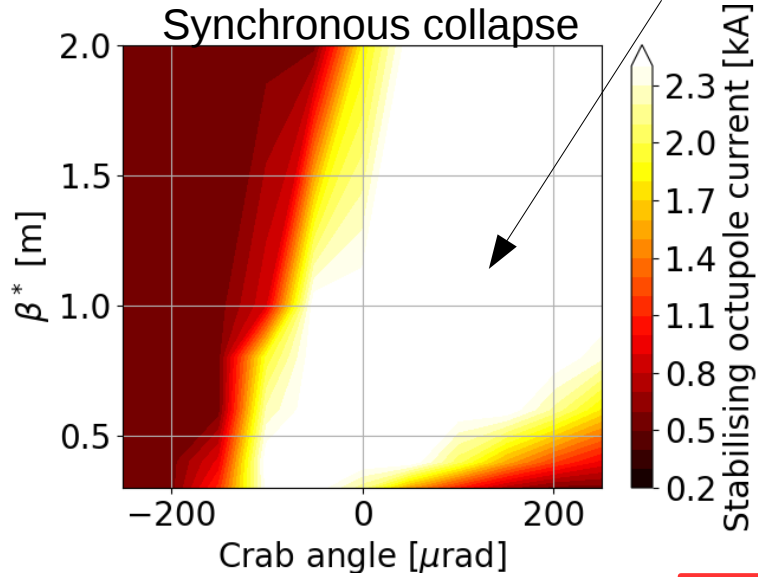


Old model

	CFC	LS2	Full	Full
Oct. thres. [A]	760	570	450	550
Equ. tele-index	2.1	1.0	1.0	1.0

Positive polarity

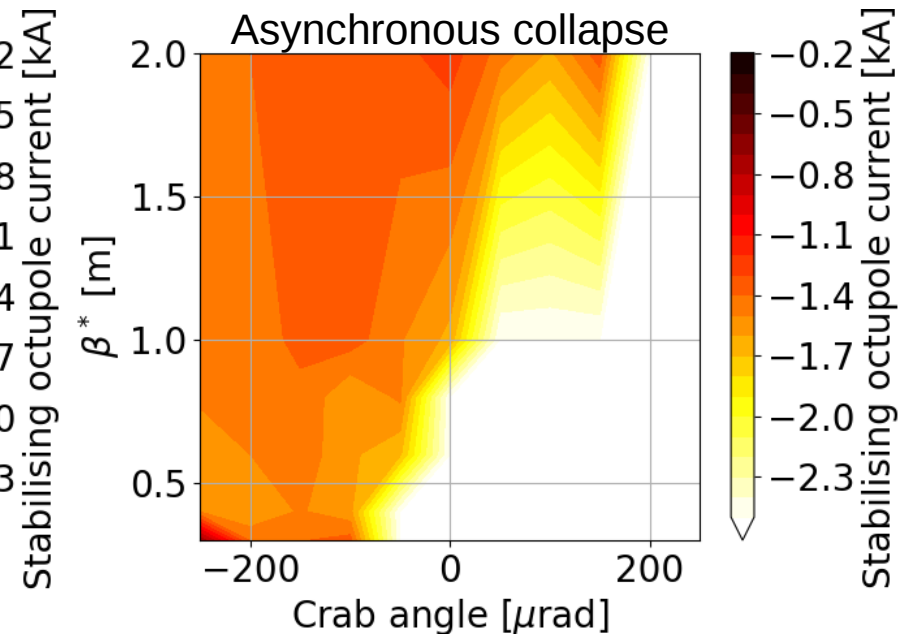
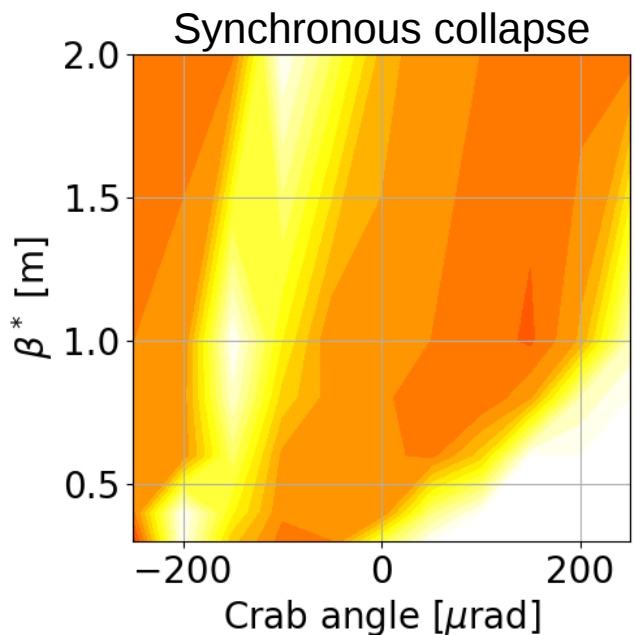
- These areas limited by the Shakiri effect might be available with a separation bump in the crossing plane



Old model

	CFC	LS2	Full	Full
Oct. thres. [A]	760	570	450	550
Equ. tele-index	2.1	1.0	1.0	1.0

Negative polarity



Old model				
	CFC	LS2	Full	Full
Oct. thres. [A]	-1900	-1600	-1300	-1540
Equ. tele-index	3.5	3.0	2.6	2.95

Possible configurations (including residual lattice errors)

- Positive polarity :
+4% for coupling
+51 A for lattice non-linearities at $\beta^*=41\text{cm}$

	CFC	LS2	Full	Full
Oct. thres. [A]	515	505	450	492
Tele-index	2.3	1.6	1.0	1.6

- Negative polarity :
+4% for coupling
-34 A for lattice non-linearities at $\beta^*=41\text{cm}$

	CFC	LS2	Full	Full
Oct. thres. [A]	-540	-540	-535	-515
Tele-index	3.5	3.1	2.75	3.1

Old model