Plan of 2020c

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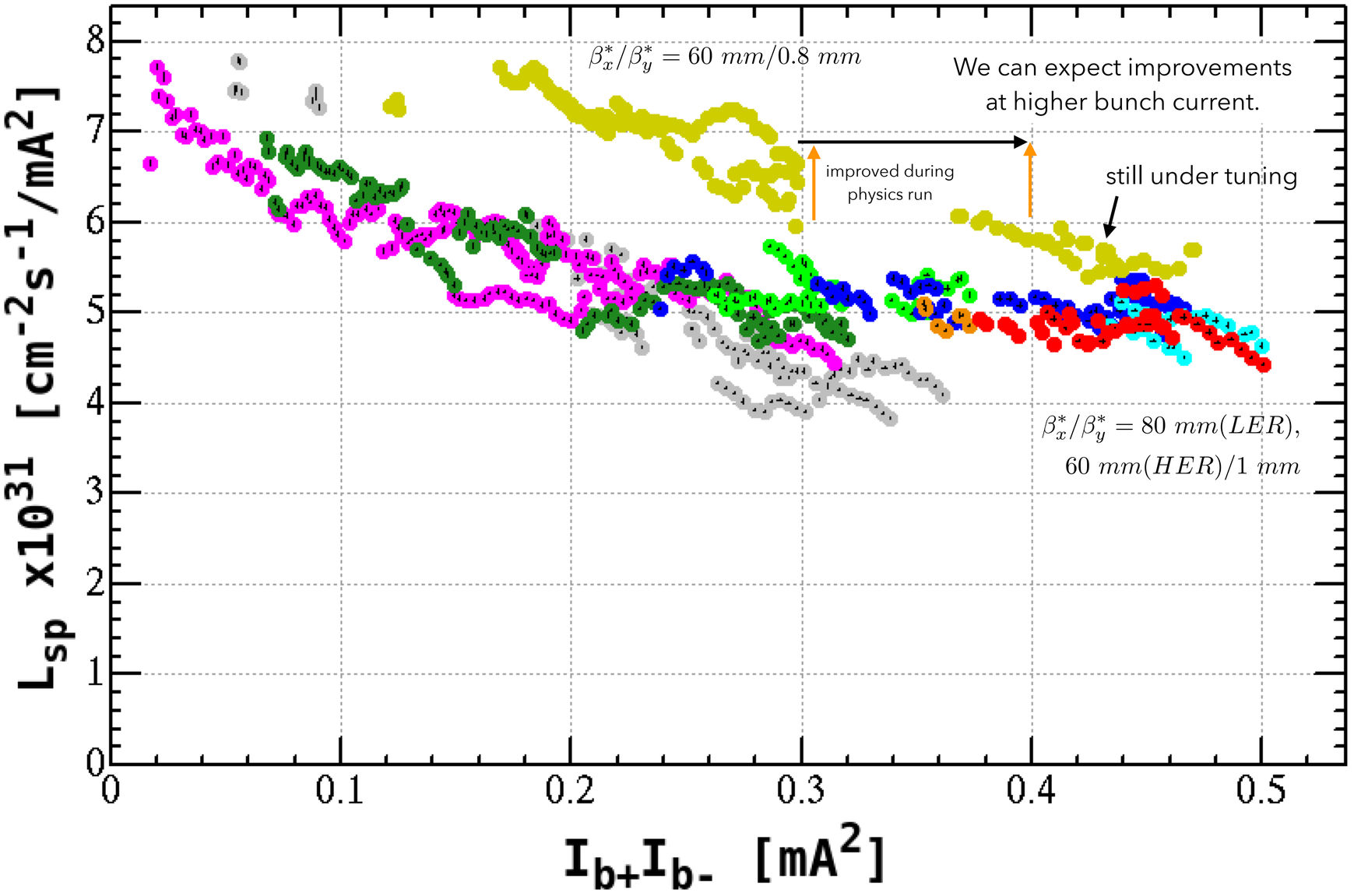
Plan A : Increase beam current up to 1 A with keeping the beta functions at the IP
Plan B : Increase beam current up to 0.75 A with squeezing the beta functions at the IP

Machine Parameters (A)

	2020b (June 1, 2020)		2020c.1		2020c.2		Unit
Ring	LER	HER	LER	HER	LER	HER	
Emittance	4.0	4.6	4.0	4.6	4.0	4.6	nm
Beam Current	536	530	750	750	1000	1000	mA
Number of bunches	978		1174		1565		
Bunch current	0.548	0.542	0.639	0.639	0.639	0.639	mA
Lifetime	600	1177	-	-	-	-	sec
Horizontal size σ_x^*	17.9	16.6	17.9	16.6	17.9	16.6	μm
Vertical cap sigma Σ_y^*	0.317		0.321		0.321		μm*1
Vertical size σ_y^*	0.224		0.227		0.227		μm*2
Betatron tunes ν_x / ν_y	45.525 / 43.581	44.531 / 41.574	44.525 / 46.581	45.531 / 43.574	44.525 / 46.581	45.531 / 43.574	
β_x^* / β_y^*	60 / 0.8	60 / 0.8	60 / 0.8	60 / 0.8	60 / 0.8	60 / 0.8	mm
Piwinski angle	12.3	12.7	12.3	12.7	12.3	12.7	
Crab waist ratio	80	40	80	40	80	40	%
Beam-Beam parameter ξ_y	0.0345	0.0199	0.0402	0.0230	0.0402	0.0230	
Specific luminosity	6.90×10^{31}		6.83×10^{31}		6.83×10^{31}		$cm^{-2}s^{-1}/mA^2$
Luminosity	2.00×10^{34}		3.27×10^{34}		4.36×10^{34}		$cm^{-2}s^{-1}$

*1) estimated by luminosity with assuming design bunch length
*2) divide *1 by √2

Specific Luminosity



Machine Parameters (BI)

	2020b (June 1, 2020)		2020c.3		2020c.4		Unit
Ring	LER	HER	LER	HER	LER	HER	
Emittance	4.0	4.6	4.0	4.6	4.0	4.6	nm
Beam Current	536	530	540	530	750	750	mA
Number of bunches	978		978		1174		
Bunch current	0.548	0.542	0.552	0.542	0.639	0.639	mA
Lifetime	600	1177	-	-	-	-	sec
Horizontal size σ_x^*	17.9	16.6	17.9	16.6	17.9	16.6	μm
Vertical cap sigma Σ_y^*	0.317		0.283		0.321		μm*1
Vertical size σ_y^*	0.224		0.200		0.227		μm*2
Betatron tunes ν_x / ν_y	45.525 / 43.581	44.531 / 41.574	44.525 / 46.581	45.531 / 43.574	44.525 / 46.581	45.531 / 43.574	
β_x^* / β_y^*	60 / 0.8	60 / 0.8	60 / 0.7	60 / 0.7	60 / 0.7	60 / 0.7	mm
Piwinski angle	12.3	12.7	12.3	12.7	12.3	12.7	
Crab waist ratio	80	40	80	40	80	40	%
Beam-Beam parameter ξ_y	0.0345	0.0199	0.0339	0.0197	0.0399	0.0228	
Specific luminosity	6.90×10^{31}		7.74×10^{31}		7.74×10^{31}		$cm^{-2}s^{-1}/mA^2$
Luminosity	2.00×10^{34}		2.27×10^{34}		3.71×10^{34}		$cm^{-2}s^{-1}$

*1) estimated by luminosity with assuming design bunch length
*2) divide *1 by √2

Machine Parameters (B2)

	2020b (June 1, 2020)		2020c.5		2020c.6		Unit
Ring	LER	HER	LER	HER	LER	HER	
Emittance	4.0	4.6	4.0	4.6	4.0	4.6	nm
Beam Current	536	530	540	530	750	750	mA
Number of bunches	978		978		1174		
Bunch current	0.548	0.542	0.552	0.542	0.639	0.639	mA
Lifetime	600	1177	-	-	-	-	sec
Horizontal size σ_x^*	17.9	16.6	17.9	16.6	17.9	16.6	μm
Vertical cap sigma Σ_y^*	0.317		0.248		0.248		μm*1
Vertical size σ_y^*	0.224		0.175		0.175		μm*2
Betatron tunes ν_x / ν_y	45.525 / 43.581	44.531 / 41.574	44.525 / 46.581	45.531 / 43.574	44.525 / 46.581	45.531 / 43.574	
β_x^* / β_y^*	60 / 0.8	60 / 0.8	60 / 0.6	60 / 0.6	60 / 0.6	60 / 0.6	mm
Piwinski angle	12.3	12.7	12.3	12.7	12.3	12.7	
Crab waist ratio	80	40	80	40	80	40	%
Beam-Beam parameter ξ_y	0.0345	0.0199	0.0331	0.0193	0.0391	0.0223	
Specific luminosity	6.90×10^{31}		8.84×10^{31}		8.84×10^{31}		$cm^{-2}s^{-1}/mA^2$
Luminosity	2.00×10^{34}		2.59×10^{34}		4.23×10^{34}		$cm^{-2}s^{-1}$

*1) estimated by luminosity with assuming design bunch length
*2) divide *1 by √2