AD/RHIC-AP-76

Dynamic aperture and the role of BC2

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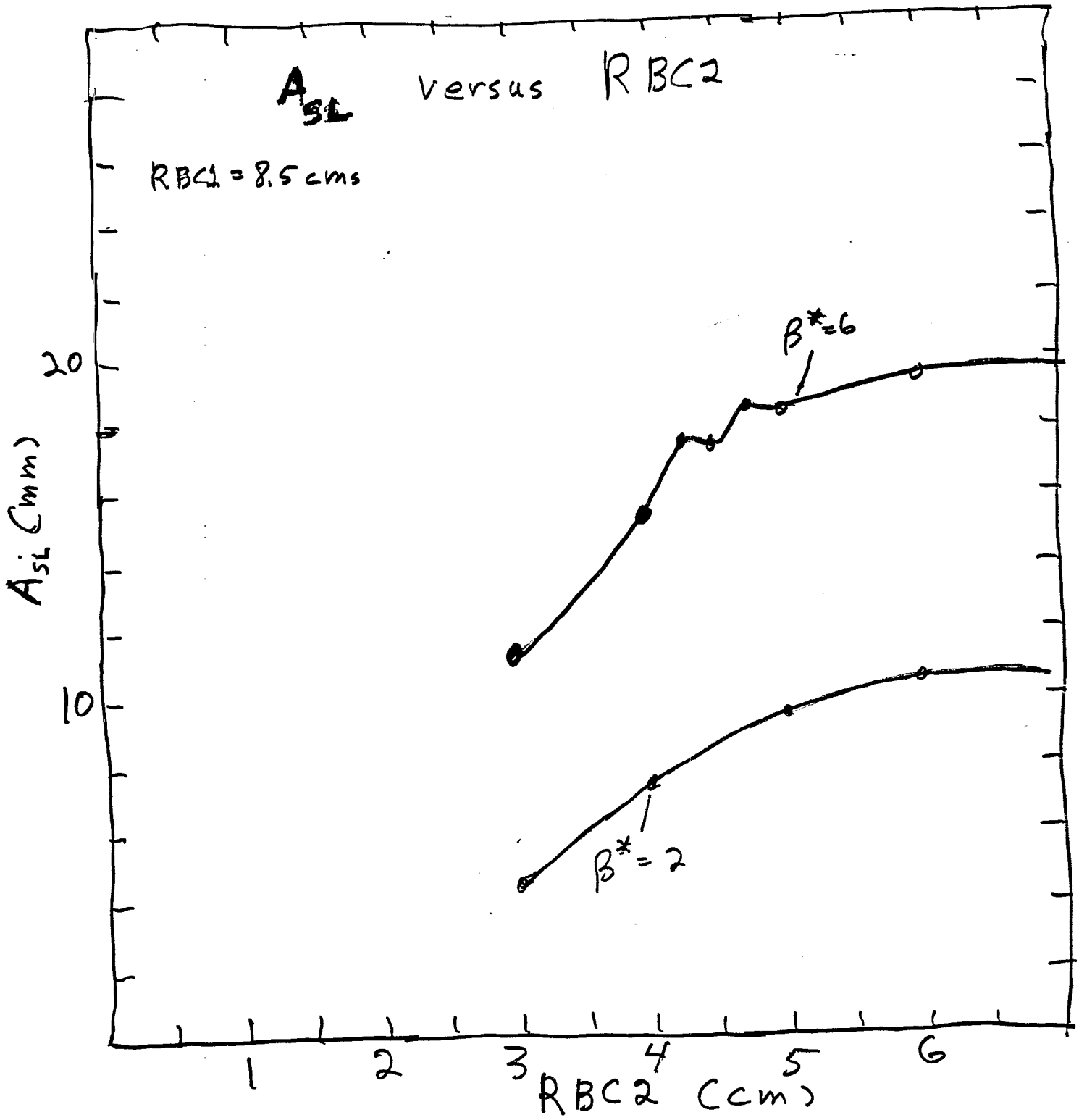
Effect of the BC2 Radius on the Dynamic Aperture

β^* (m)	RBC2 (cm)	RBC1 (cm)	A_{SL} (mm, $\varepsilon_x = \varepsilon_y$)
6	4	8.5	15.5
6	5	10	18.5
2	4	8.5	7.5
2	5	10	8.5

Decreasing RBC2 from 5 cm to 4 cm gives about 15% loss in aperture.

Plotting A_{SL} vs. RBC2, there appears to be a knee in the curve at about RBC2 = 5 cms. For RBC2 ≤ 4 cms, BC2 begins to play a dominating role in ~~determining~~ determining A_{SL}.


A_{SL} versus RBC2
RBC1 = 8.5 cms
$\beta^* = 6$
$\beta^* = 2$
20
10
A_{SL} (mm)
1
2
3
4
5
6
RBC2 (cm)