

**Supplemental Table 1:** Computer-based simulation for the prediction of the S-states ratios and the occupancy ratio  $Q_B/Q_{B^-}$

No of flashes	WT			$\Delta psbTc$					
	Data	S1	S2	S3	Data	S1	S2	S3	
1	6.7	6.7	6.7	6.7	8.9	8.82	8.9	8.9	
2	8.9	8.9	8.95	8.95	7.9	7.92	7.9	7.9	
3	5.9	5.9	5.9	5.9	5.3	5.3	5.3	5.3	
4	5.2	5.2	5.2	5.2	4.4	4.4	4.4	4.4	
5	6.9	6.9	6.9	6.9	8.3	8.3	8.3	8.3	
6	8.1	6.85	8.9	8.9	6.8	6.51	6.8	6.8	
Correlation coefficients		0.927936	0.84254	1		0.997765	0.997765	1	
$Q_B/Q_{B^-}$ ratio		1.35	0.9	0.9		2.07	1.68	1.68	