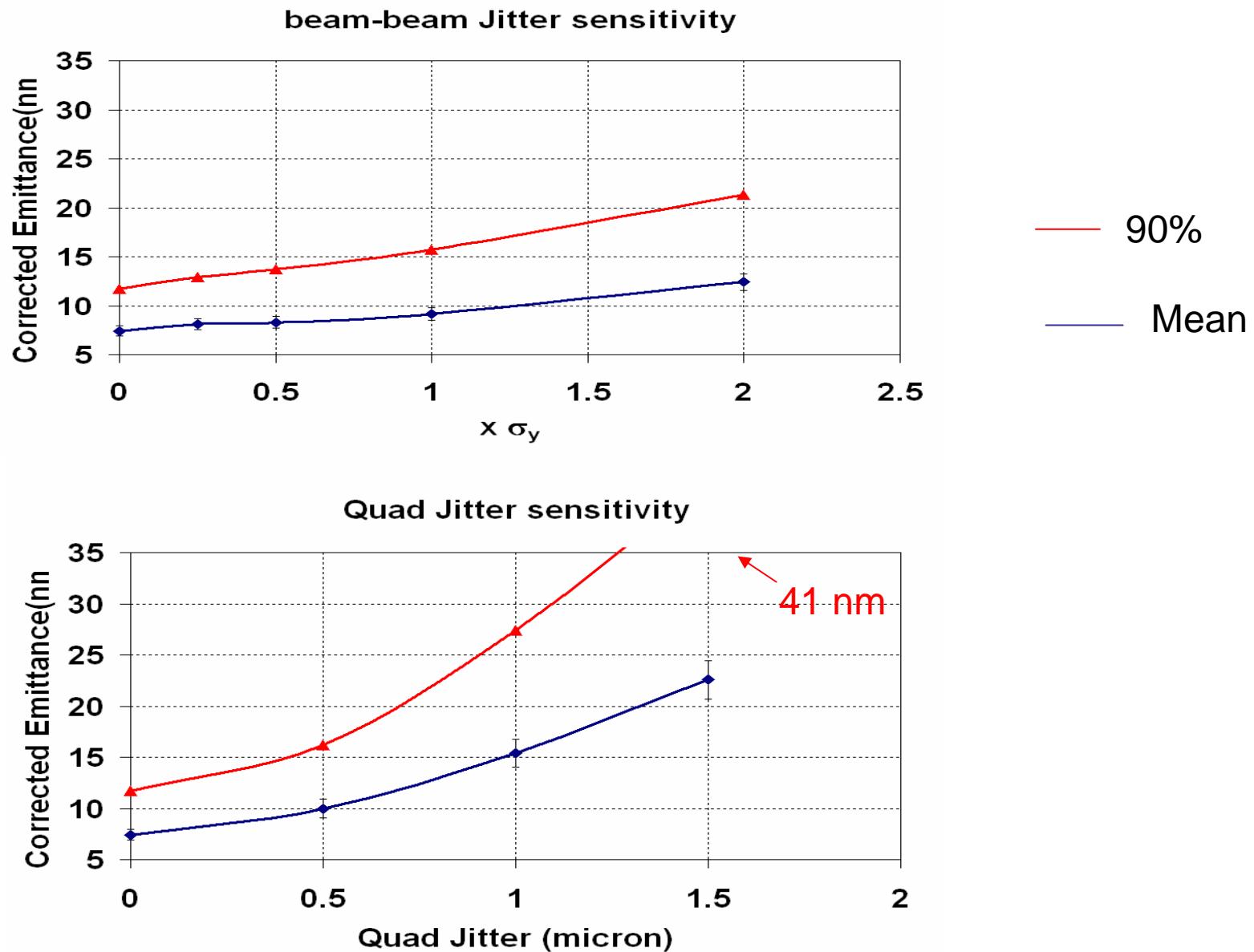


ILC Curved Linac simulation; 50 seeds

(Nominal) installation conditions

Tolerance	Vertical (y) plane
BPM Offset w.r.t. Cryostat	300 μm
Quad offset w.r.t. Cryostat	300 μm
Quad Rotation w.r.t. Cryostat	300 μrad
Cavity Offset w.r.t. Cryostat	300 μm
Cryostat Offset w.r.t. Survey Line	200 μm
Cavity Pitch w.r.t. Cryostat	300 μrad
Cryostat Pitch w.r.t. Survey Line	20 μrad
BPM Resolution	1.0 μm

Dispersion Matched Steering: Jitter Sensitivity



Decomposition in terms of different components

Dispersion - Quad offset, BPM offset, Cavity pitch, CM pitch, No wakes, ELOSS on
 Wakes - Cavity offset, CM offset , Wakes on , ELOSS on
 Quadroll - Quad roll only , ELOSS on

BPM resolution = 1 micron

CURVED

	Mean dilution (nm)		90% dilution (nm)	
	1:1	DFS	1:1	DFS
Nominal	211 ± 25	7.43 ± 0.46	442	11.8
Dispersion	187.5 ± 19	4.0 ± 0.3	341	6.9
Wakes	1.57 ± 0.15	4.59 ± 0.23	2.9	6.3
Quad roll	1.41 ± 0.12	4.43 ± 0.15	2.8	5.7

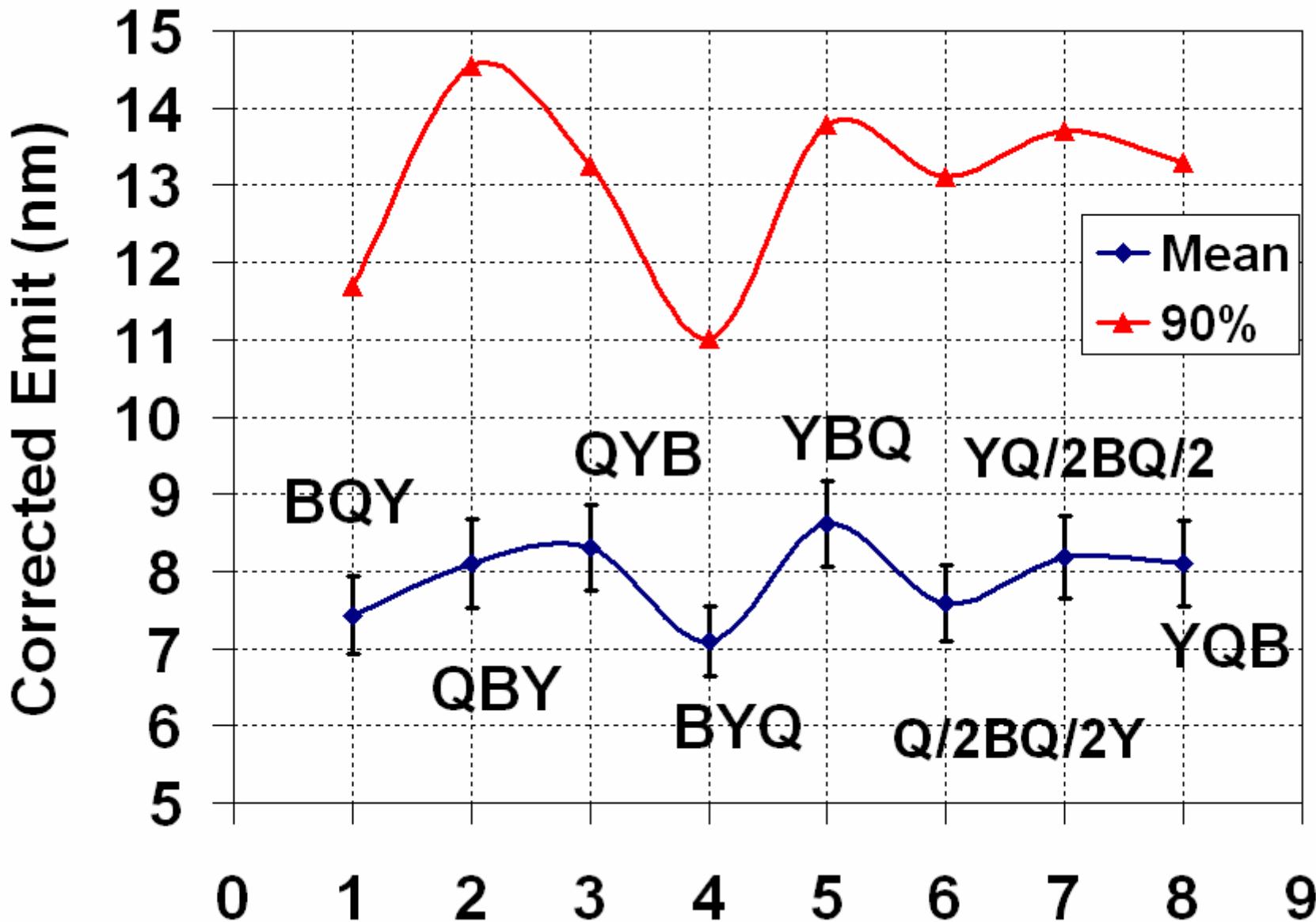
STRAIGHT

	Mean dilution (nm)		90% dilution (nm)	
	1:1	DFS	1:1	DFS
Nominal	232 ± 28	5.0 ± 0.40	436	8.7
Dispersion	250 ± 24	2.3 ± 0.3	491	3.9
Wakes	1.45 ± 0.15	1.92 ± 0.19	2.84	3.7
Quad roll	1.30 ± 0.13	1.90 ± 0.16	2.57	3.54

Linear dispersion corrected emittance growth - DMS

Quad strength error (dK)	mean	90%
0.5 e-3	7.43 ± 0.46	11.7
1e-3	7.44 ± 0.46	11.5
2.5e-3	7.50 ± 0.46	11.5
5e-3	7.70 ± 0.46	11.9

Linear dispersion corrected emittance growth – DMS
– Different locations of BPM, YCOR, Quad etc.



Linear dispersion corrected emittance growth – DMS
– Effect of Individual misalignment, Wakes on,
ELOSS on, DMS weights fixed at 1e-6 m : 300e-6 m.

Individual misalignments	mean	90%
Quad offset only	2.91 ± 0.007	2.96
BPM resolution only	3.13 ± 0.06	3.59
BPM offset only	2.92 ± 0.02	3.05
Quad roll only	4.18 ± 0.13	5.4
Cavity offset only	3.2 ± 0.06	3.8
Cavity pitch only	4.48 ± 0.3	7.5
Front BPM offset only	3.2 ± 0.18	4.1