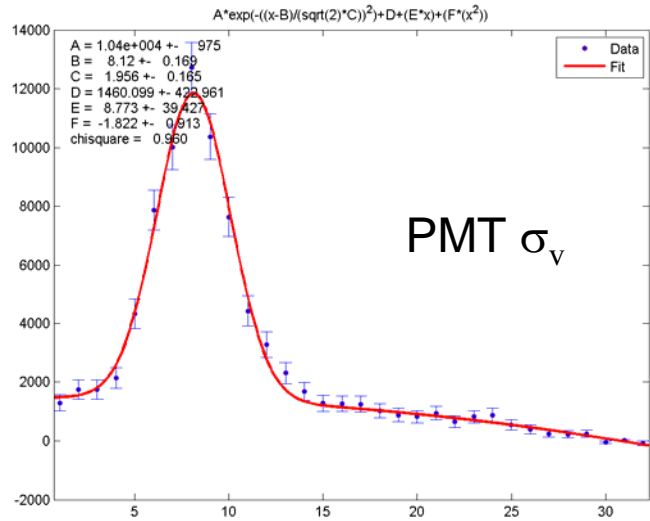


e+ PMT/Interferometer Comparison



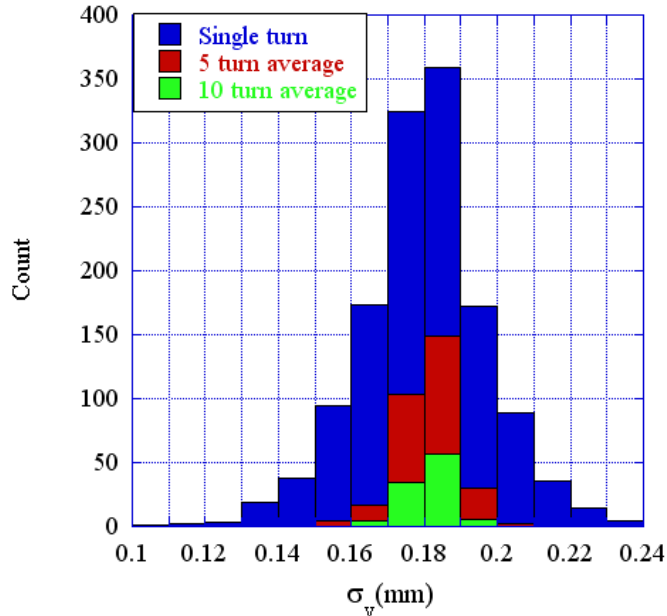
Single bunch of e+ at I=2.3mA. Measured σ_v with PMT and Interferometer.

- PMT resolution correction is $\sigma_{\text{resolution}} = \sqrt{\sigma_{\text{diffraction}}^2 + \sigma_{\text{depth of field}}^2} = 172\mu\text{m}$
- Measured σ_v for single turn, 5-turn, 10-turn average at 2 PMT voltage settings. No change in σ_v due turn averaging. Slight change in σ_v for different PMT voltages. $\sigma_v \sim 180\mu\text{m}$ from PMT.
- Average $\sigma_v \sim 200\mu\text{m}$ from e+ interferometer.

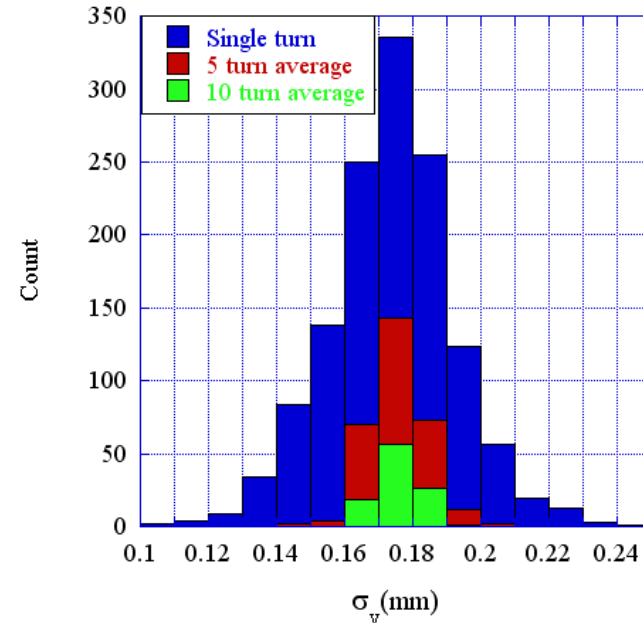
	Single turn	5 turn avg	10 turn avg
Mean	0.17930515	0.18104082	0.18116004
Std Deviation	0.019056576	0.0082363121	0.0057134751
Std Error	0.00059551801	0.00057665719	0.00056571833

	Single turn	5 turn average	10 turn average
Mean	0.1735345	0.17526478	0.17536812
Std Deviation	0.020476494	0.0092888733	0.0063845192
Std Error	0.00063989045	0.00065035121	0.0006321616

CESR-c Single Bunch e+ I=2.3mA PMT Voltage=400V File:1931

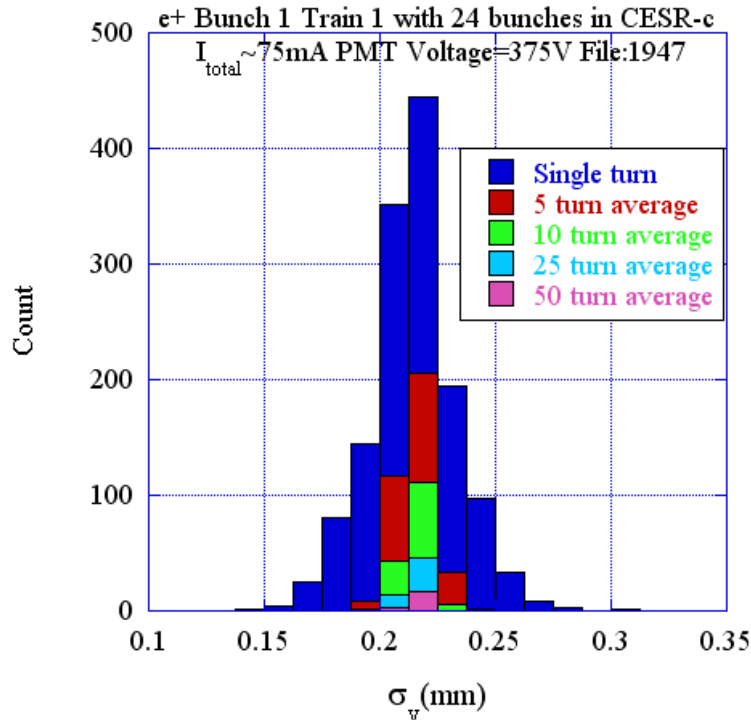


CESR-c Single Bunch e+ I=2.3mA PMT Voltage=375V File:1932



	Single turn	5 turn average	10 turn average	25 turn average	50 turn average
Mean	0.21419729	0.21509114	0.21527172	0.21517619	0.215012
Std Deviation	0.021235697	0.0088211149	0.0065514424	0.0041339958	0.0023704827
Std Error	0.00066361554	0.00061760158	0.00064868946	0.00065364213	0.00053005604

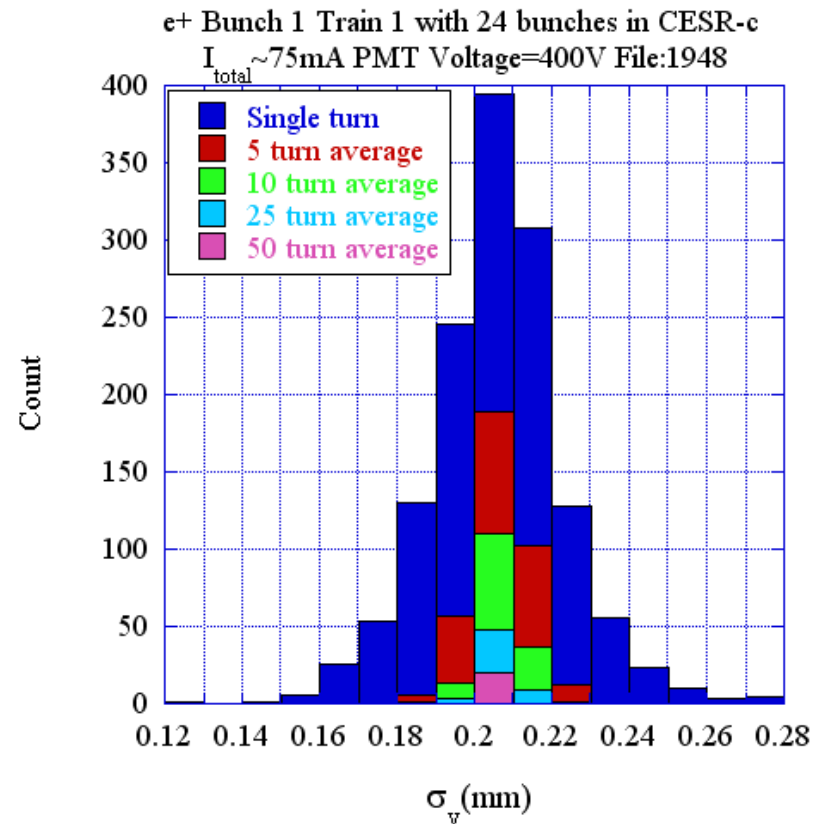
Single bunch (train 1, bunch 1) of e+ with 24 bunches present in CESR with I~3mA/bunch. Measured σ_v with PMT and Interferometer.



• Measured σ_v for single turn, 5-turn, 10-turn, 25-turn, and 50-turn average at 2 PMT voltage settings. No change in σ_v due turn averaging. Slight change in σ_v for different PMT voltages. $\sigma_v \sim 206 \mu\text{m}$ (PMT=400V) and $\sigma_v \sim 215 \mu\text{m}$ (PMT=375V).

• PMT beam size increased with 24 bunches whereas the interferometer beam size stayed the same. Average $\sigma_v \sim 200 \mu\text{m}$ from e+ interferometer.

	Single turn	5 turn average	10 turn average	25 turn average	50 turn average
Mean	0.20549277	0.20668587	0.2065183	0.20677763	0.20628656
Std Deviation	0.019342314	0.0086912021	0.005921742	0.0041338017	0.0023538296
Std Error	0.00060444732	0.00060850586	0.00058633983	0.00065361144	0.0005263323



24 bunches of e+ in CESR with I~3mA/bunch.

- Measured σ_v for single turn, 5-turn, 10-turn, 25-turn, and 50-turn average at PMT voltage setting at 400v. Adjusted CESR-c skew quad from nominal setting (skq@-187cu) to setting to induce beam size blow-up (skq@2413cu). Measured σ_v using interferometer at both skew quad settings.

- No change in PMT σ_v with turn averaging!

- Average $\sigma_v \sim 220\mu\text{m}$ (skq@-187), $\sigma_v \sim 265\mu\text{m}$ (skq@2113) from e+ PMT.

- Average $\sigma_v = 200\mu\text{m}$ (skq@-187), $\sigma_v = 230\text{-}240\mu\text{m}$ (skq@2113) from e+ interferometer.

20% beam size blow-up was measured with PMT and Interferometer.

