

Latest THz spectroscopy results at FLASH

Hossein Delsim-Hashemi

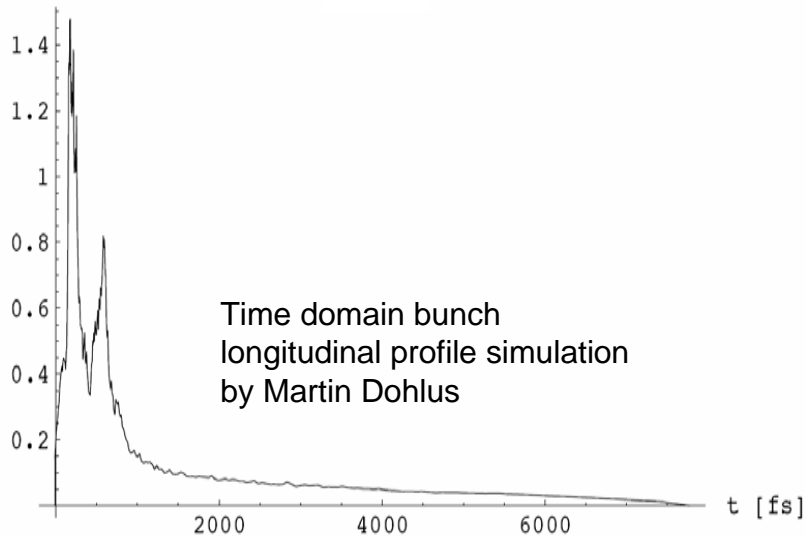
spectral energy density

$$\frac{dU}{d\omega} = C N^2 |F_{long}(\omega)|^2 T(\omega, \gamma, r_b, \theta, source)$$

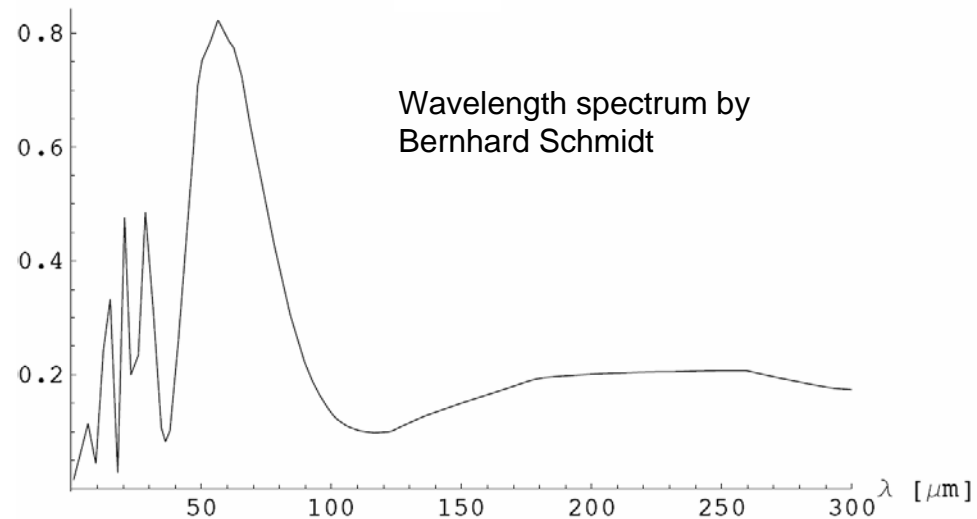
$$F_{long}(\omega) = \int_{-\infty}^{\infty} \tilde{\rho}(t) \exp(-i\omega t) dt$$

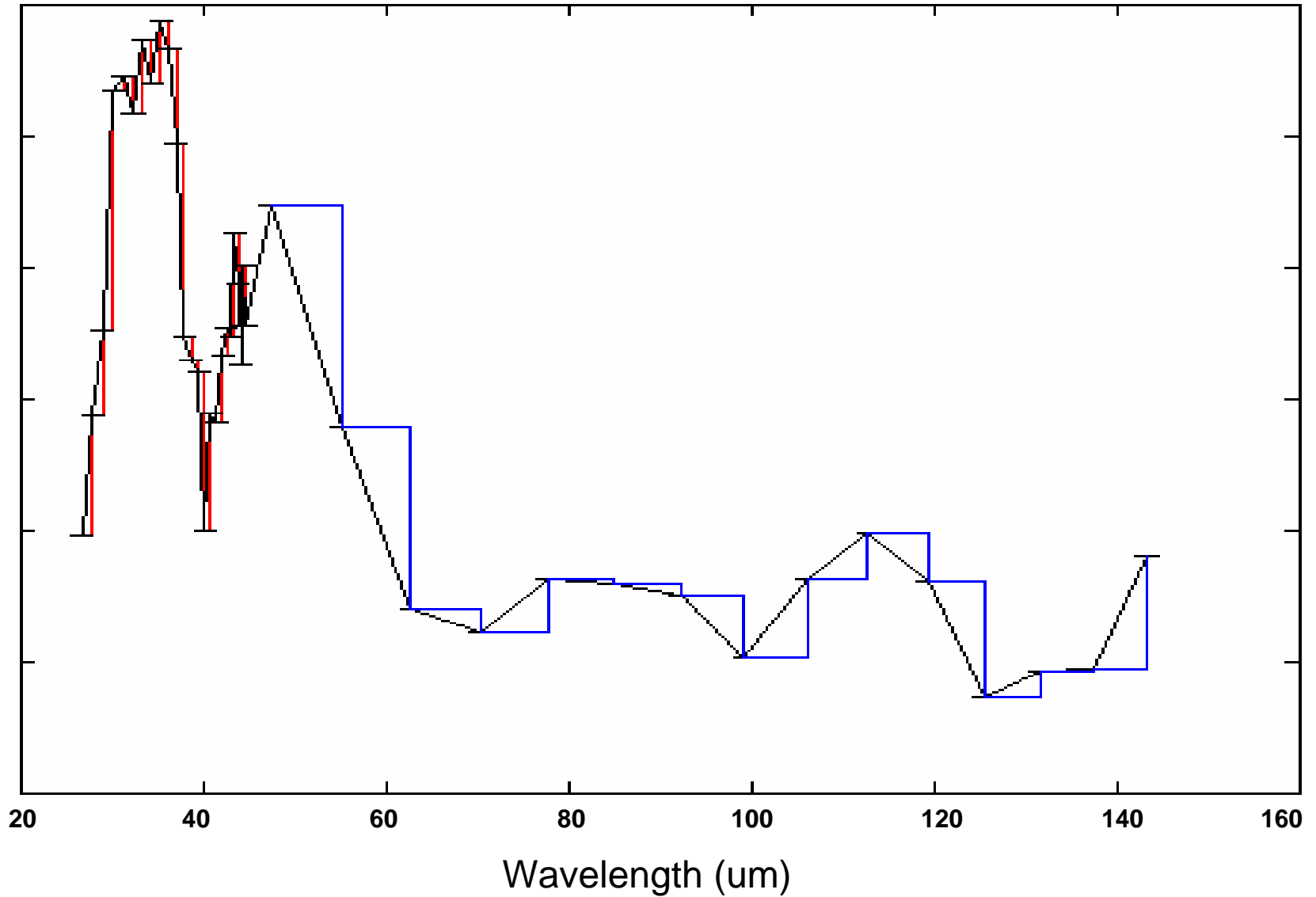
normalized charge density

current [kA]

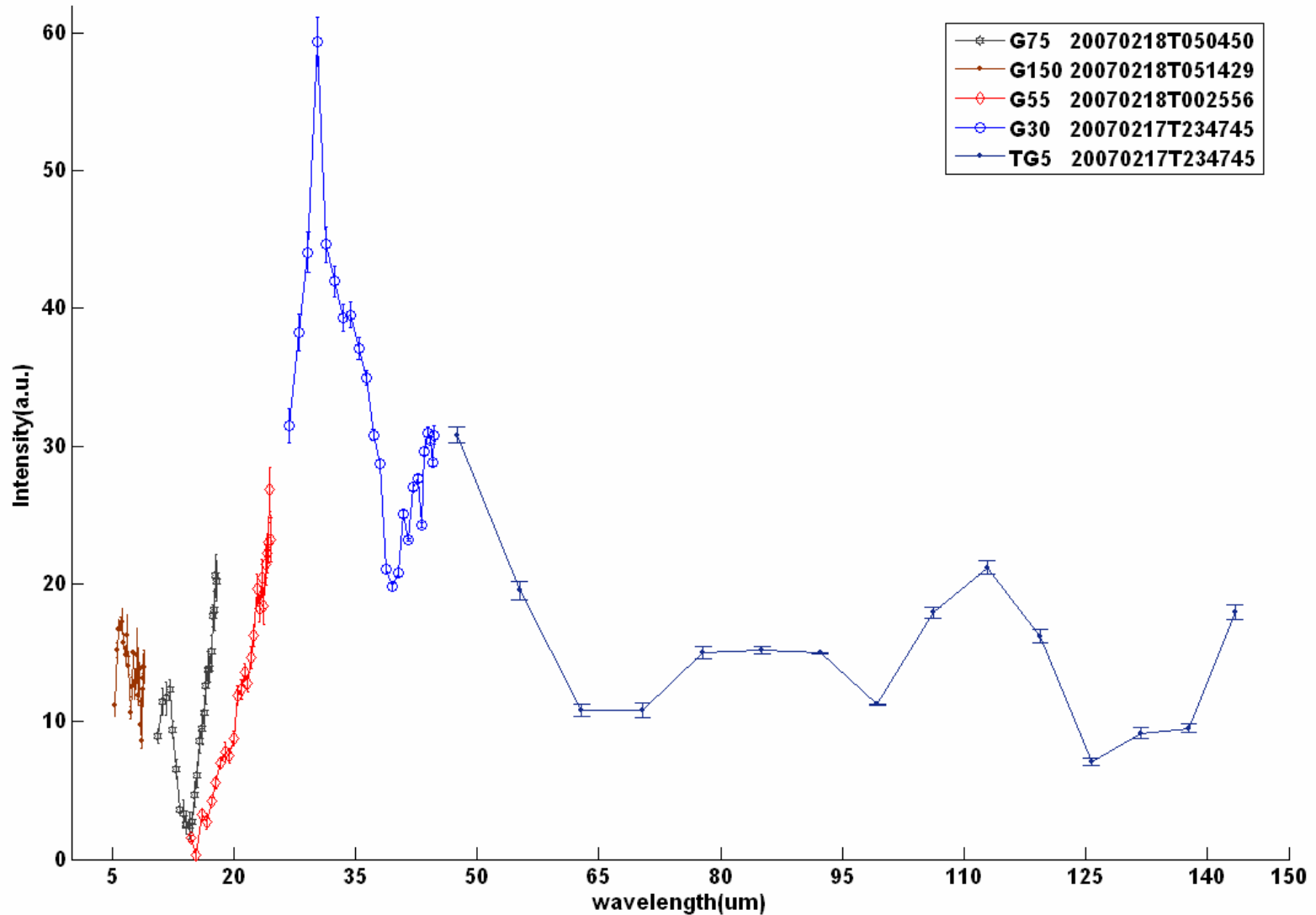


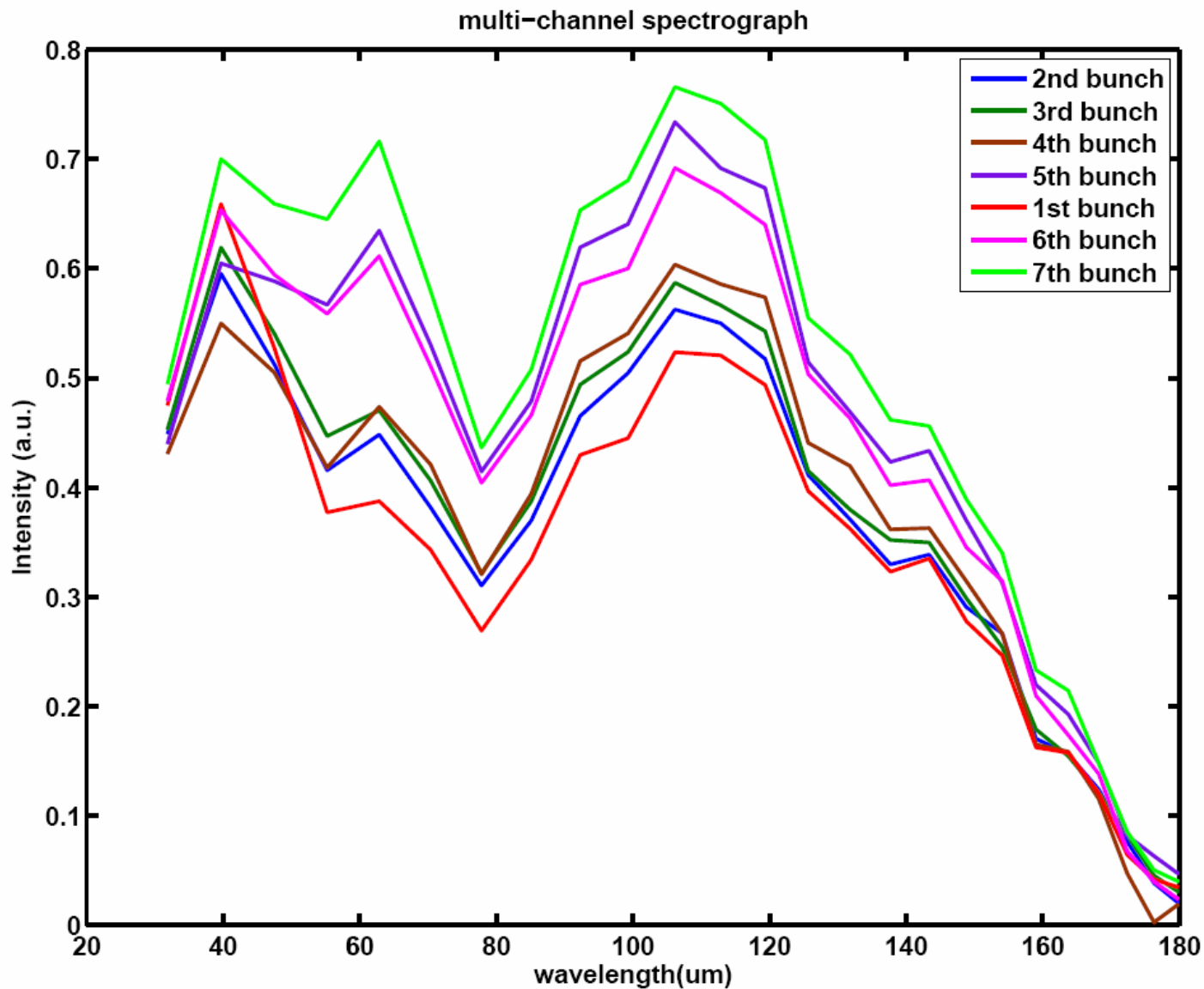
power

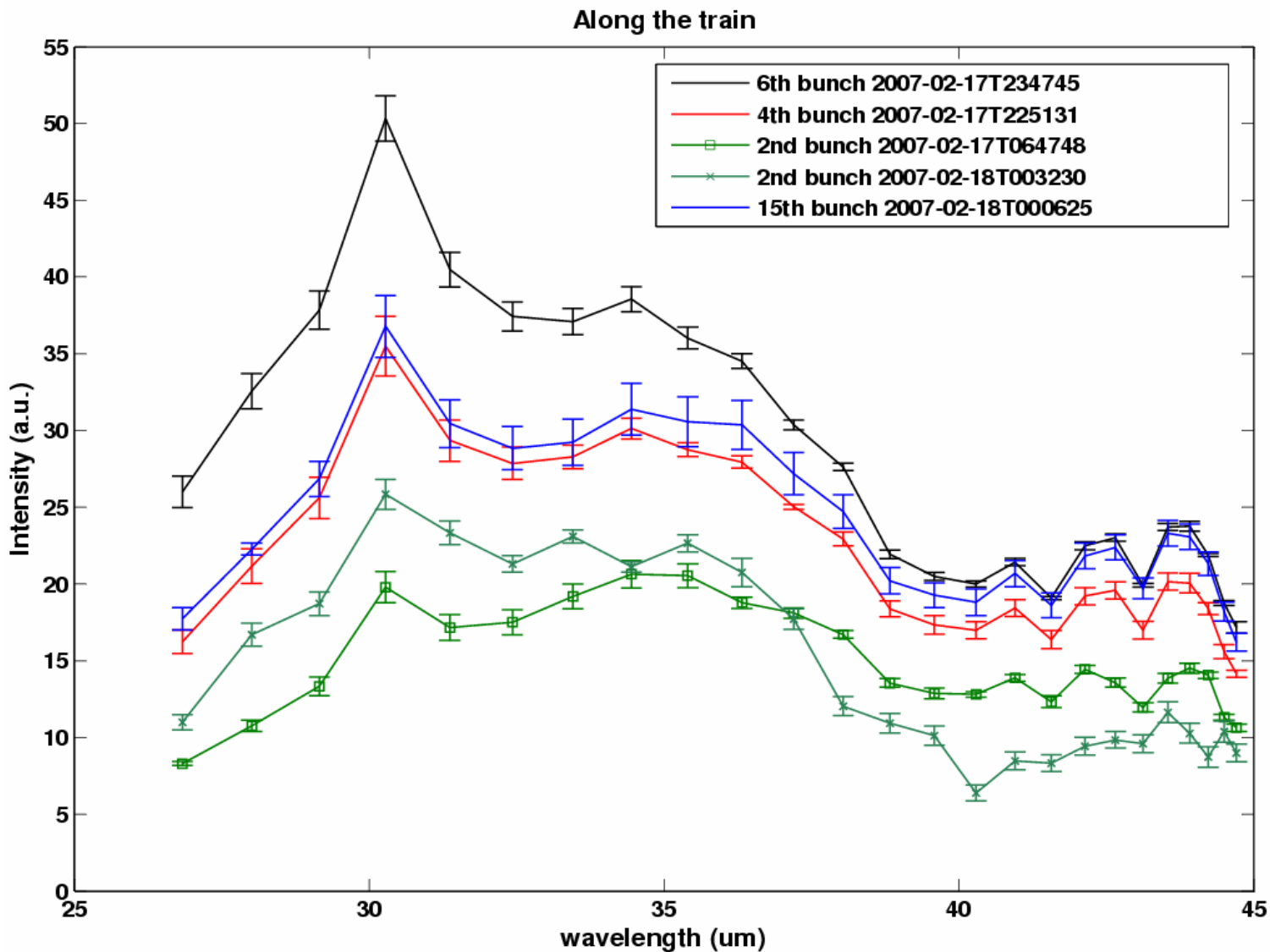


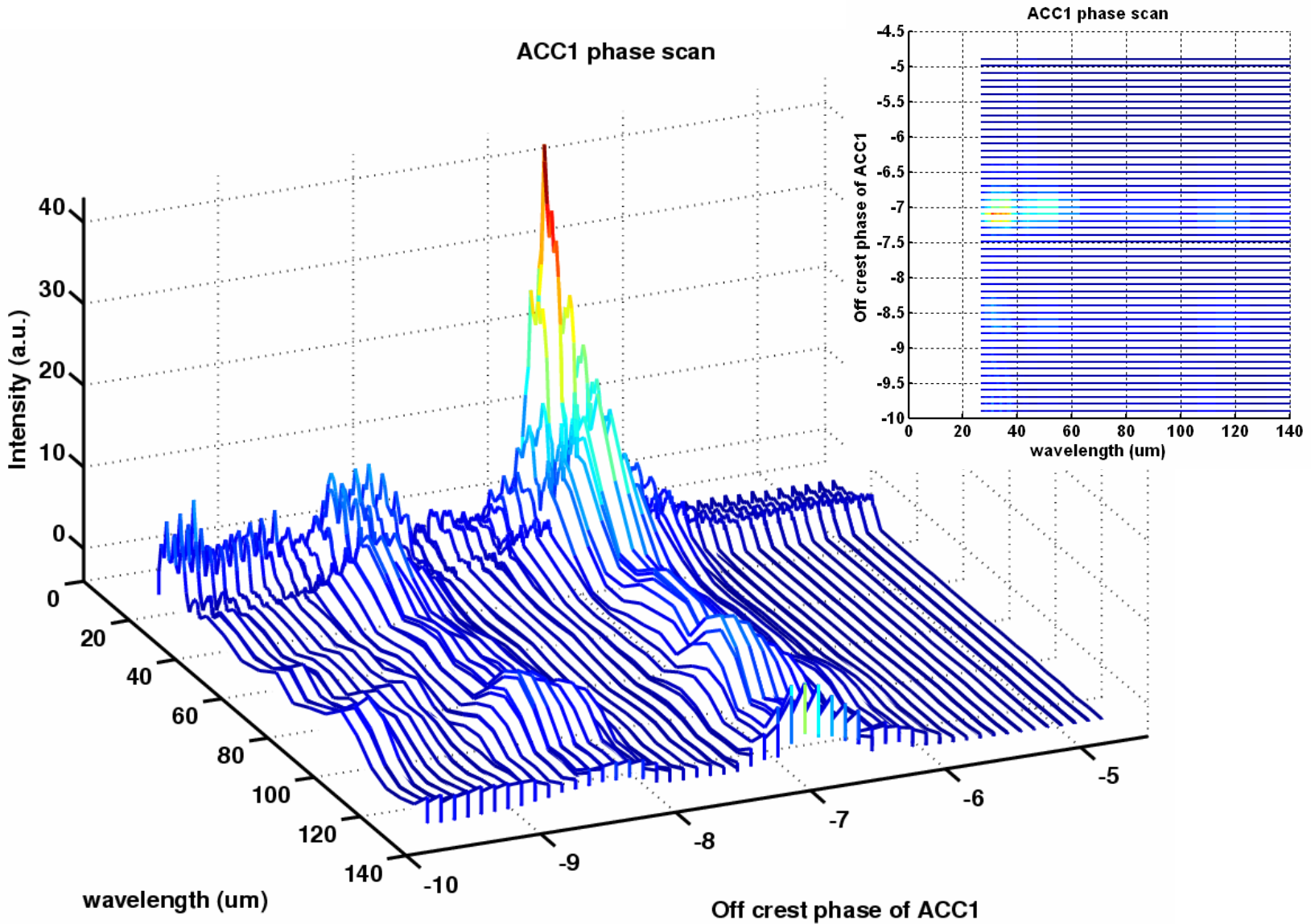


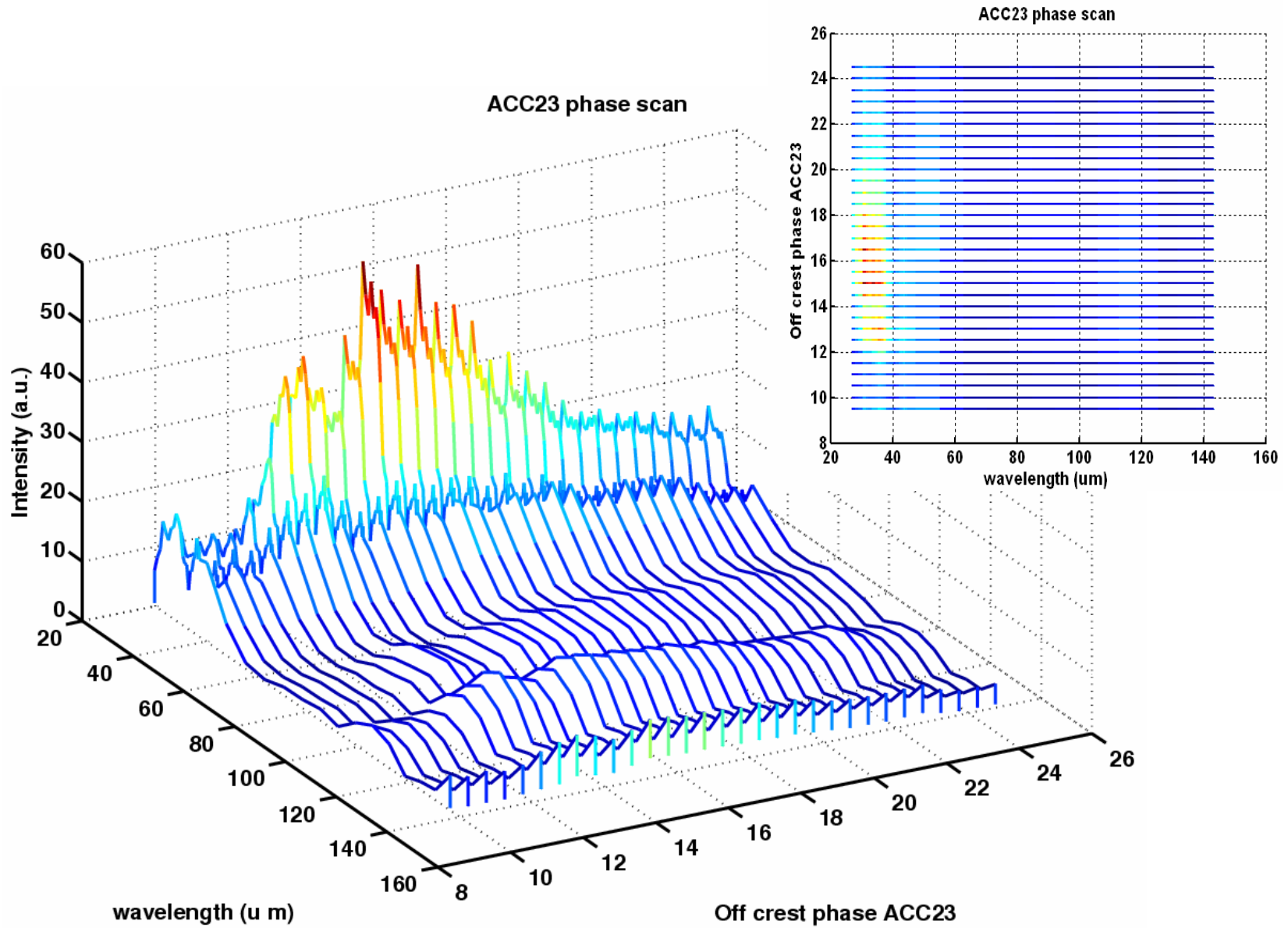
Combined spectra of the 5th bunch - off axis screen

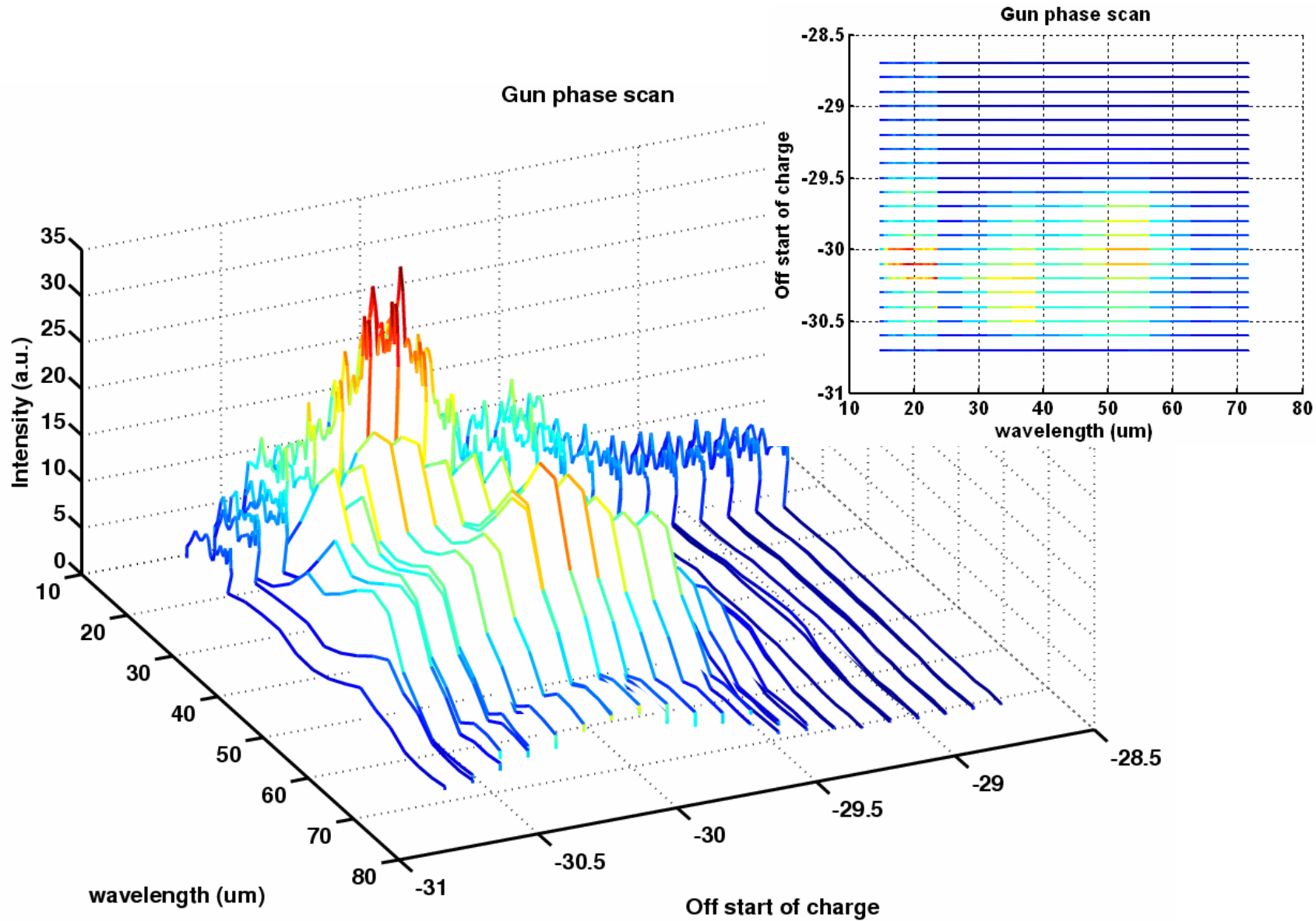












BIS-BLM-protoc.

19.02.2007 04:31 tttlinac SASE tuning parameters

RF parameters

	GUN	ACC1	ACC2/3	ACC4/5
Power/Gradient	+3.017	+14.70	+20.81	+9.85
Readback	3.38	121.9	211.9	130.7

Phase	-150.29	-162.04	+110.50	+153.18
Readback	-140.3	-135.0	-24.1	-34.8

Adaptive feedforward		off	ON	ON

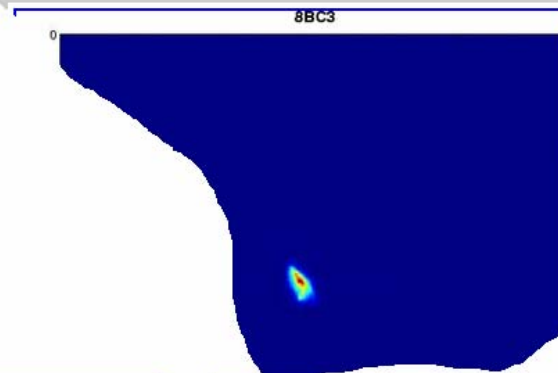
19.02.2007 05:14 Delsim-Hashemi, Grimm Screen SBC3

On-crest phase BC3 difficult to determine, the image behavior as function of phase is as clear as for BC2. This image corresponds to phase ACC23 95.5 deg.

Note: screen SBC3 is NOT located in the dispersive section of BC3, but in the non-dispersive section. Theoretically the dispersion should be zero. To check on-crest phase of BC3, look at screen 11BC3, which is in dispersive part of the BC.

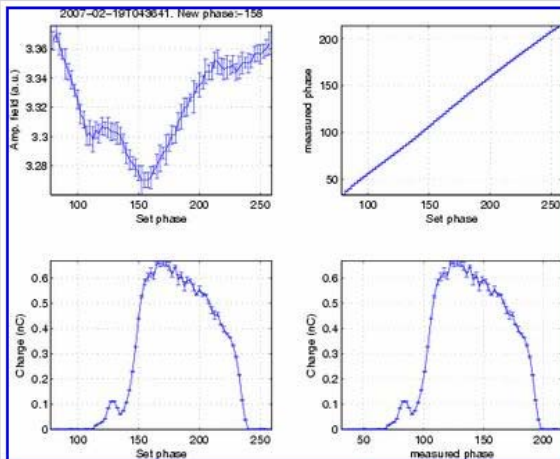
Katja

This elogbook entry was send to following experts:
Grimm



19.02.2007 04:40 Delsim-Hashemi, Grimm Gun phase scan

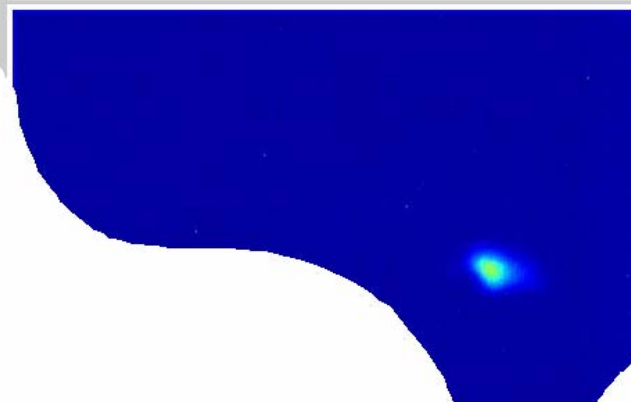
Start of charge at -120.3 deg. Current SASE operation at -30 deg from this



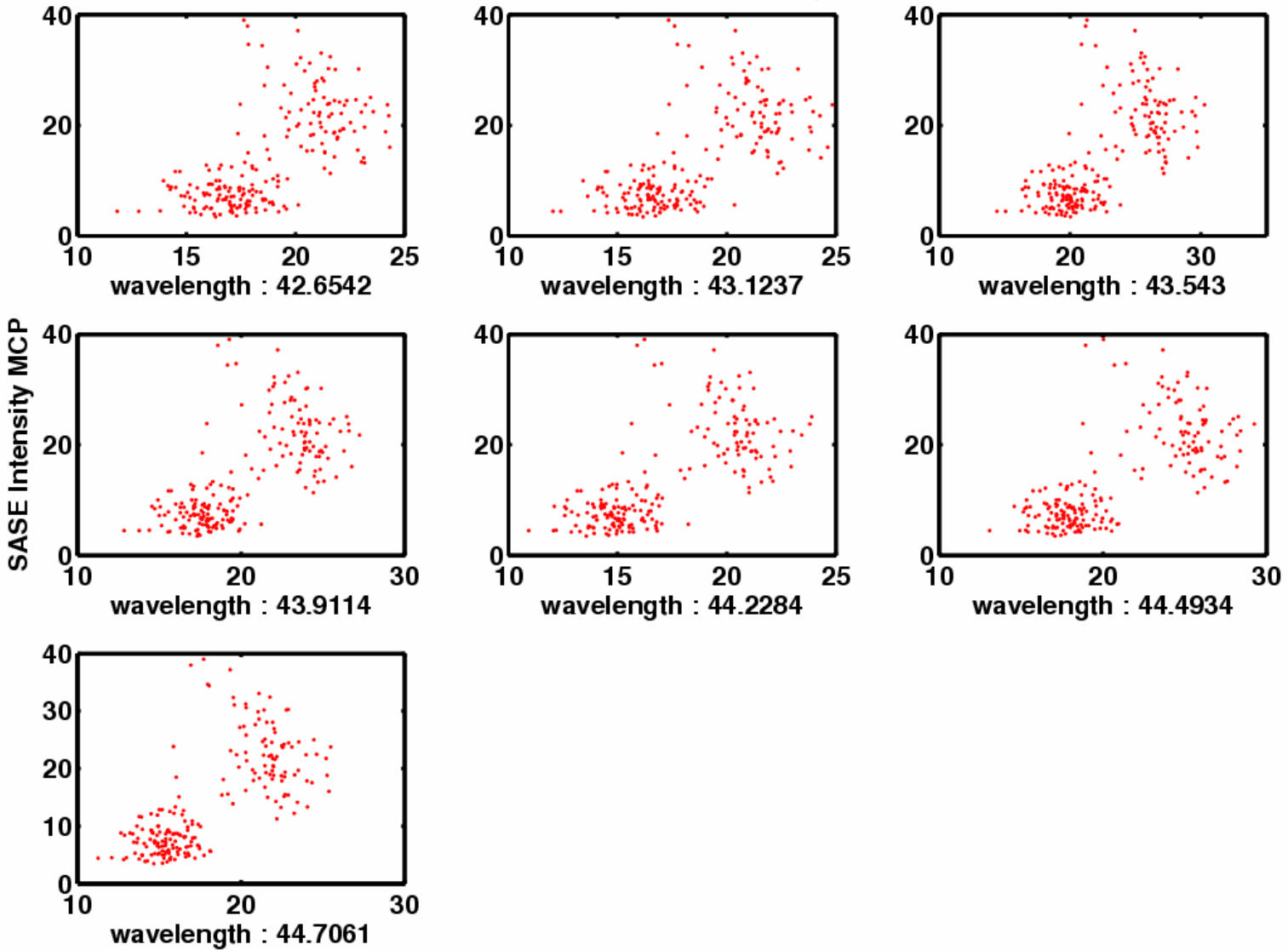
19.02.2007 04:37 tttlinac

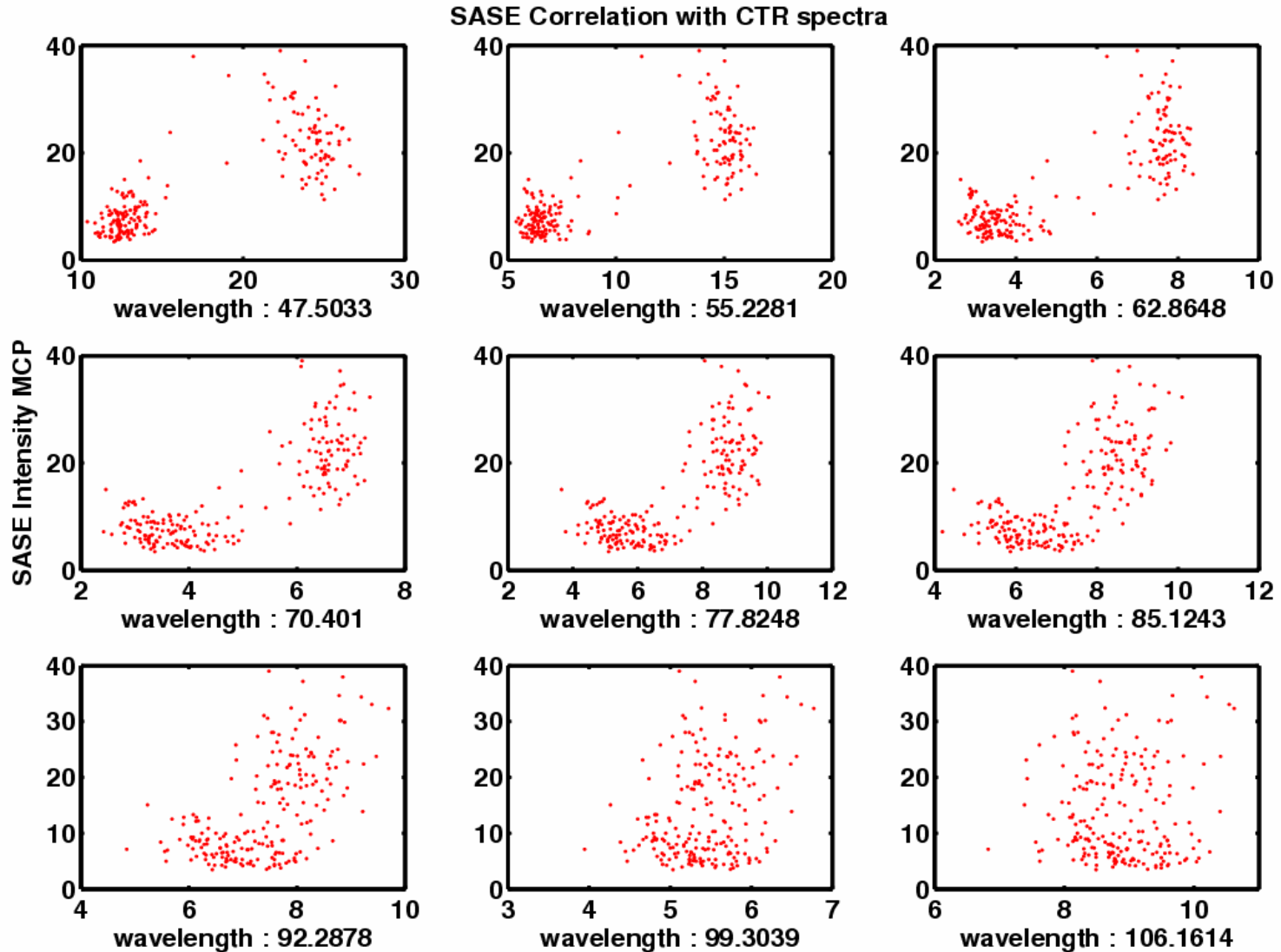
19.02.2007 05:03 Delsim-Hashemi, Grimm Image screen 3BC2

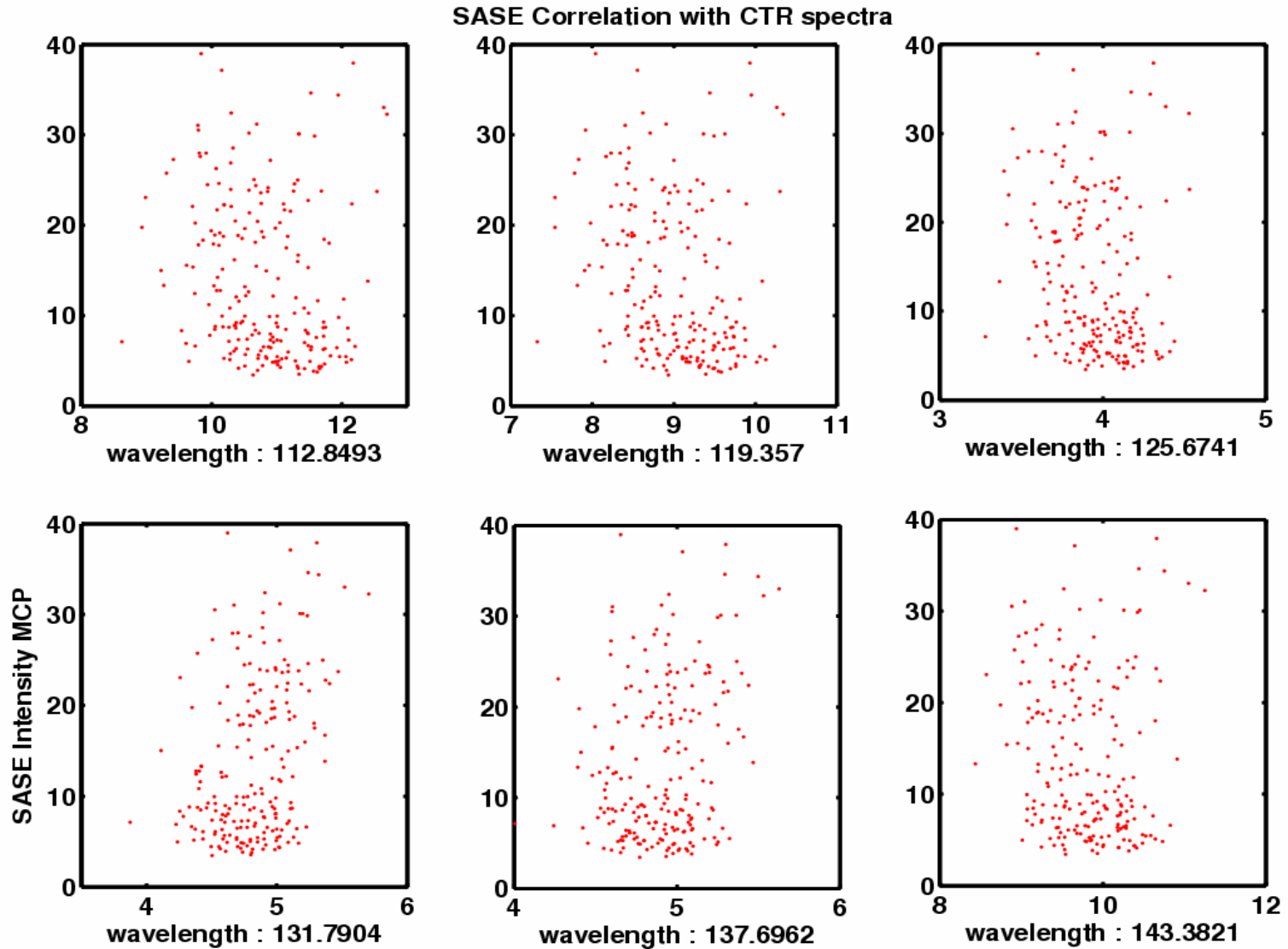
On-crest phase -155.10 deg.



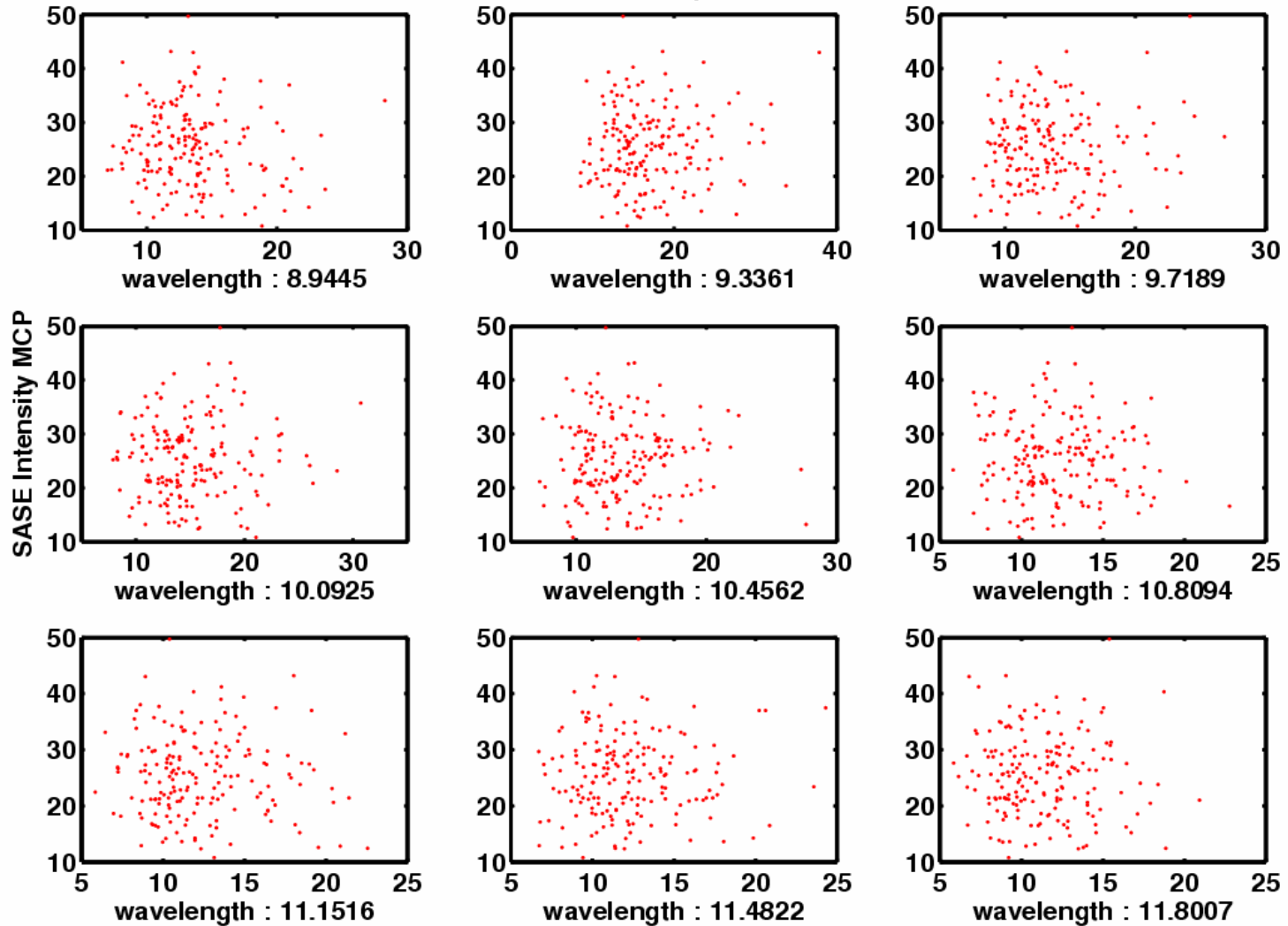
SASE Correlation with CTR spectra



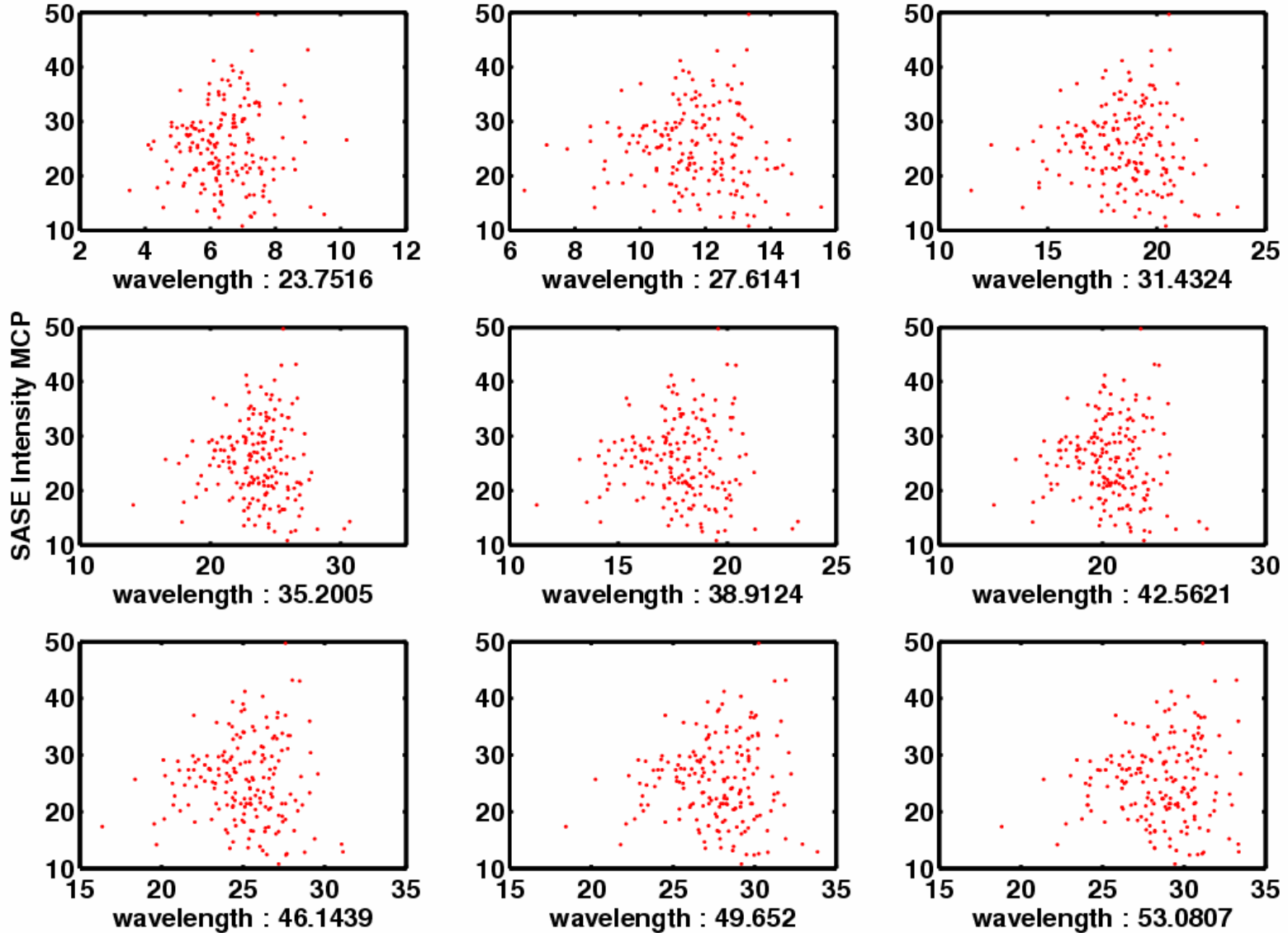




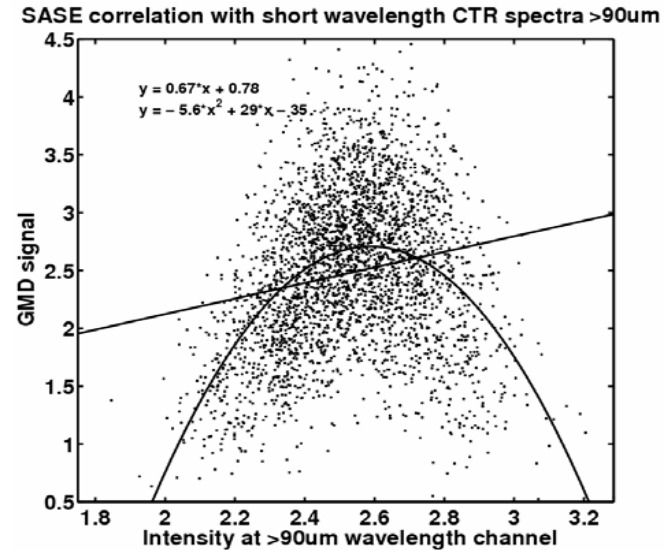
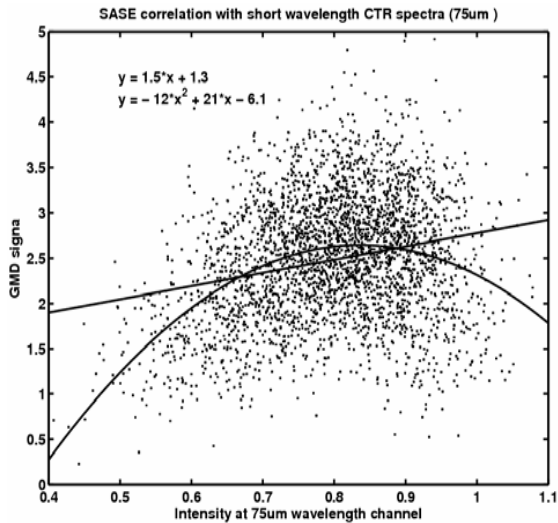
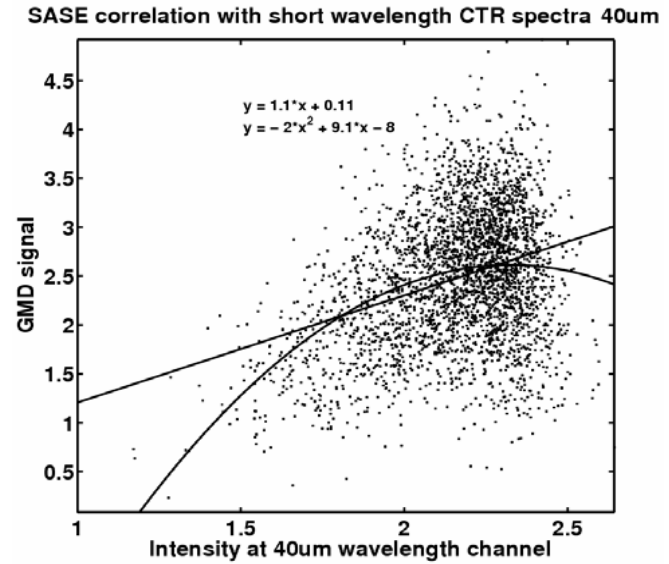
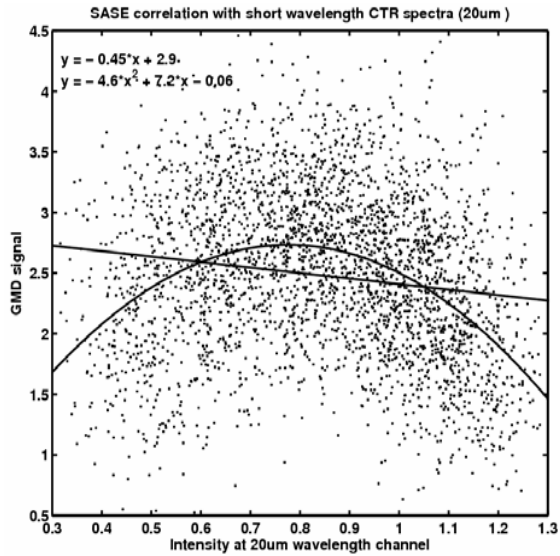
SASE Correlation with CTR spectra 2007-02-19T042348

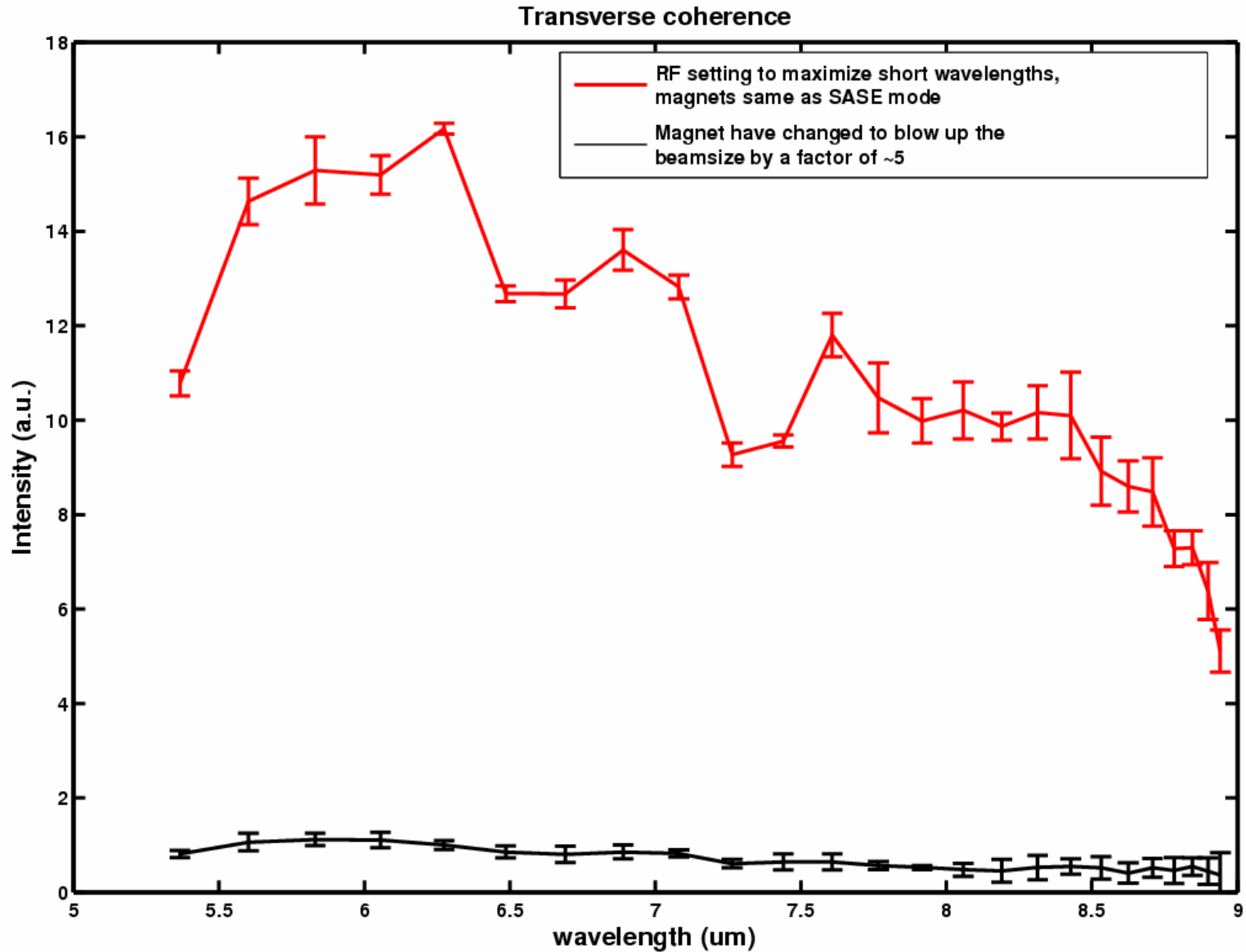


SASE Correlation with CTR spectra

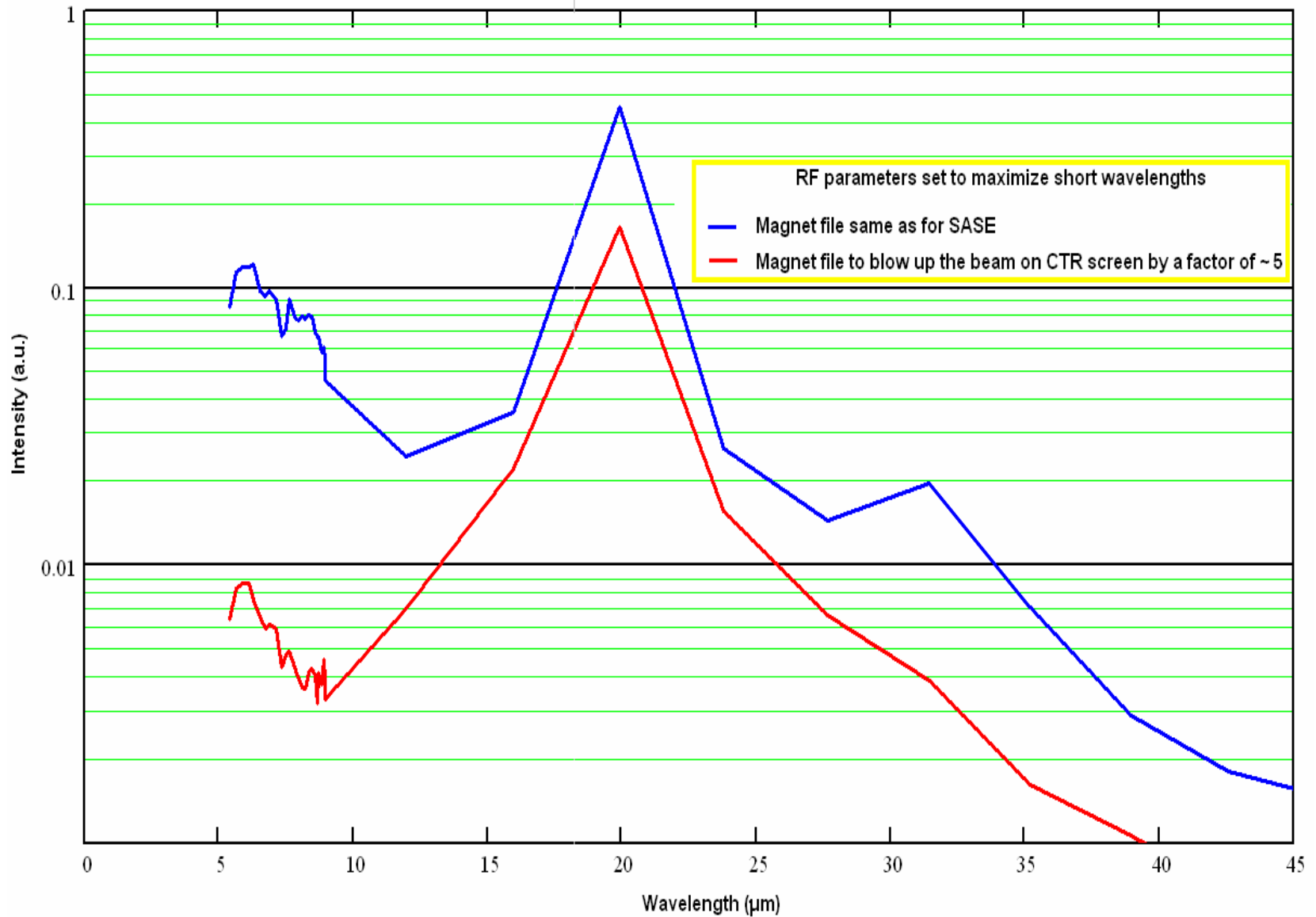


SASE-spectra correlation old runs





Beam transverse size effect





28.02.2007 22:46 tflinac

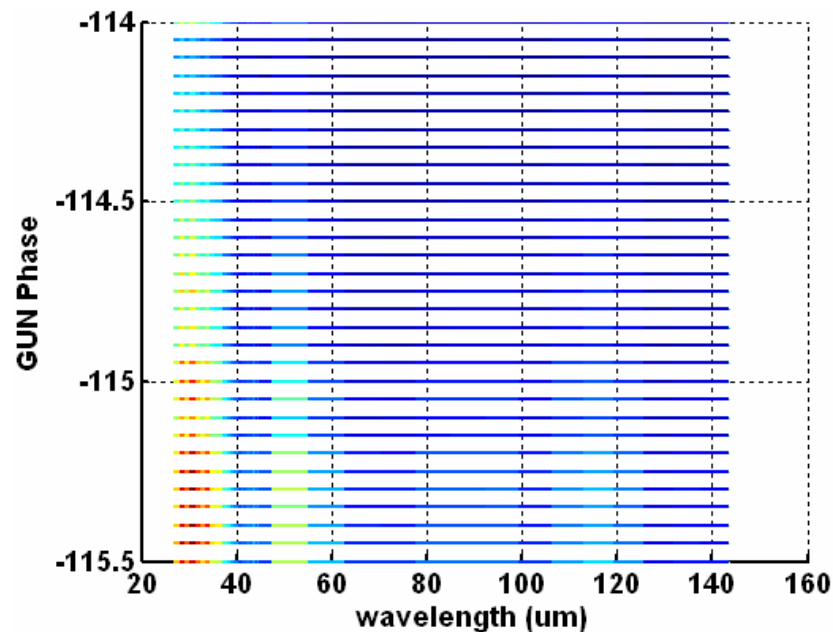
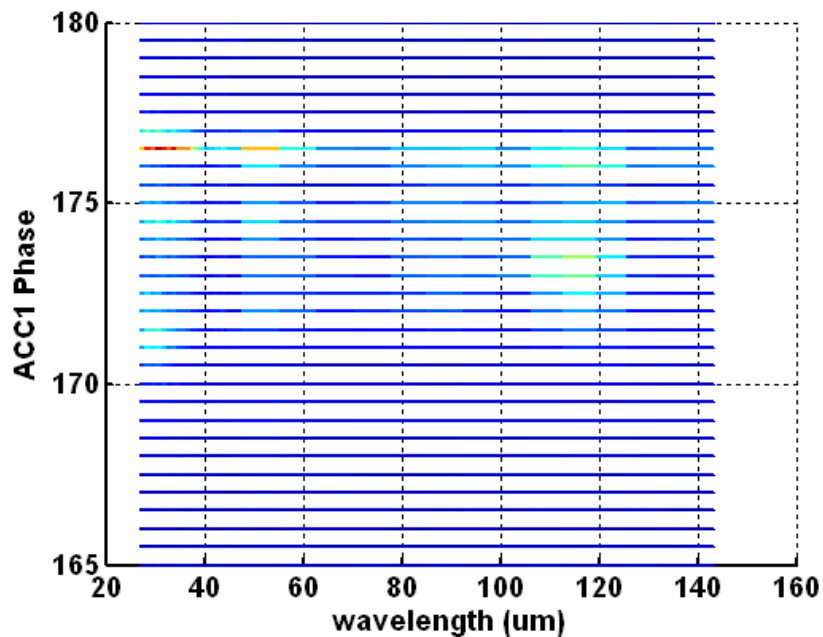
SASE tuning parameters, magnets 28_2, movers 27_2

RF parameters

	GUN	ACC1	ACC2/3	ACC4/5
Power/Gradient	+3.111	+14.72	+21.44	+18.10
Readback	3.52	121.9	219.5	309.2

Phase	-115.90	+176.16	+85.20	+165.80
Readback	-156.9	-113.4	-9.1	-37.7

Adaptive feedforward			ON	ON



To be continued!