Lab Plans and Actions for Week 8/25/08-9/7/08

Scientist	Report (8/25-9/7)	Plans (9/8-9/15)
Jane Zhang	- Make and test new batch of SERS substrate (setVII, and VIII) ▪ 250um thick cover, flow sol into the microwells through the channels ▪ Eliminate reduction agent inlet ▪ Substrate shed to broken pieces during shaking or drying ▪ See procedures and results in the table below ▪ Current problems: - Morphology wise, gold particles are quite consistent in size and distribution - Missing link between morphology and SERS behaviour will take a little longer to find out	- Design and make alignment rubber stamp mold: eliminate reduction agent inlet - Chips are one time use only. Need to make more for new testings ▪ Shorter shaking ▪ Longer drying - Multilayer design is not feasible as the thickness of the cover has to be thinner than 100um - Order AFM cantilever - Take image of set VIII with AFM/SEM

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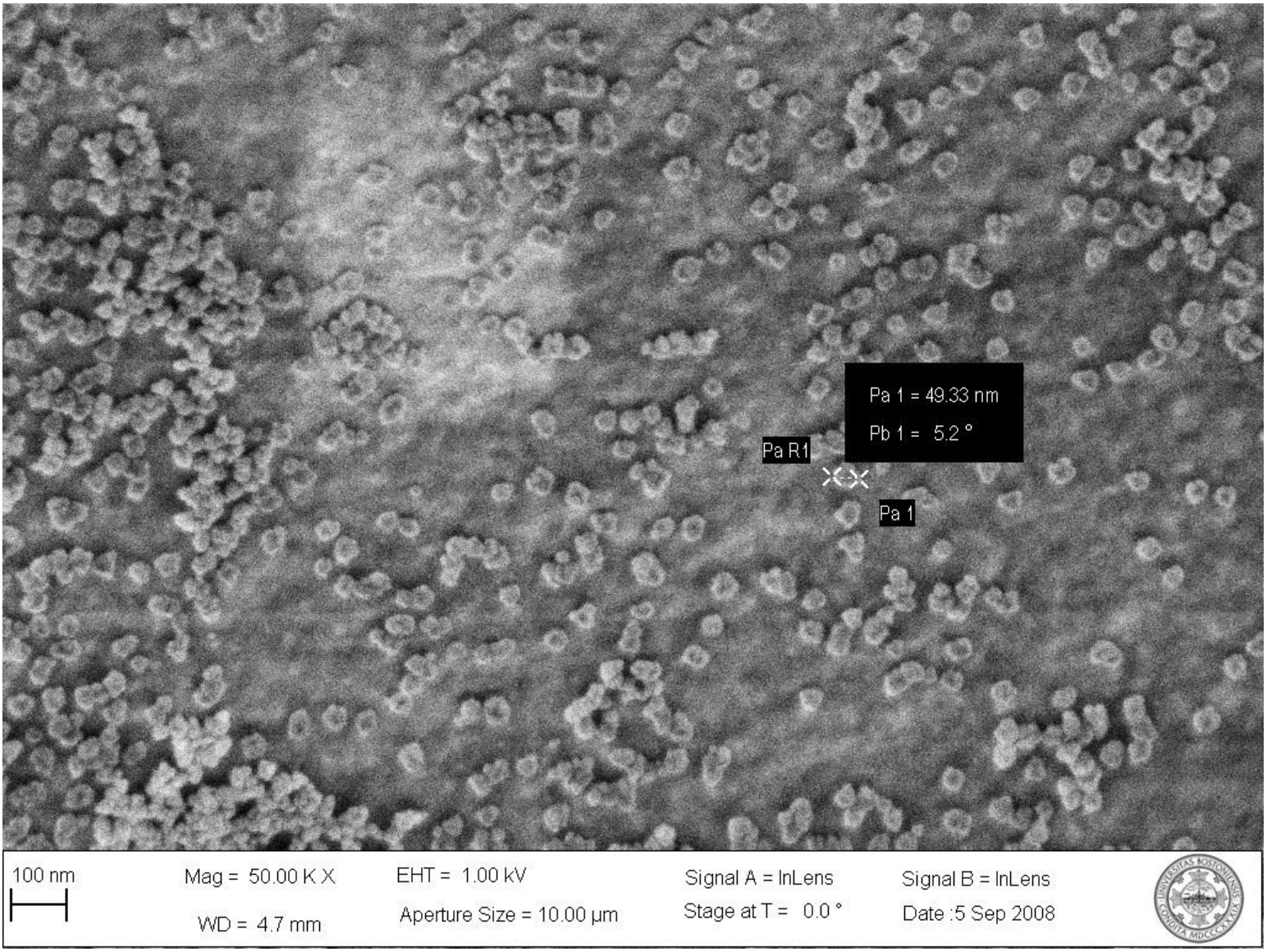
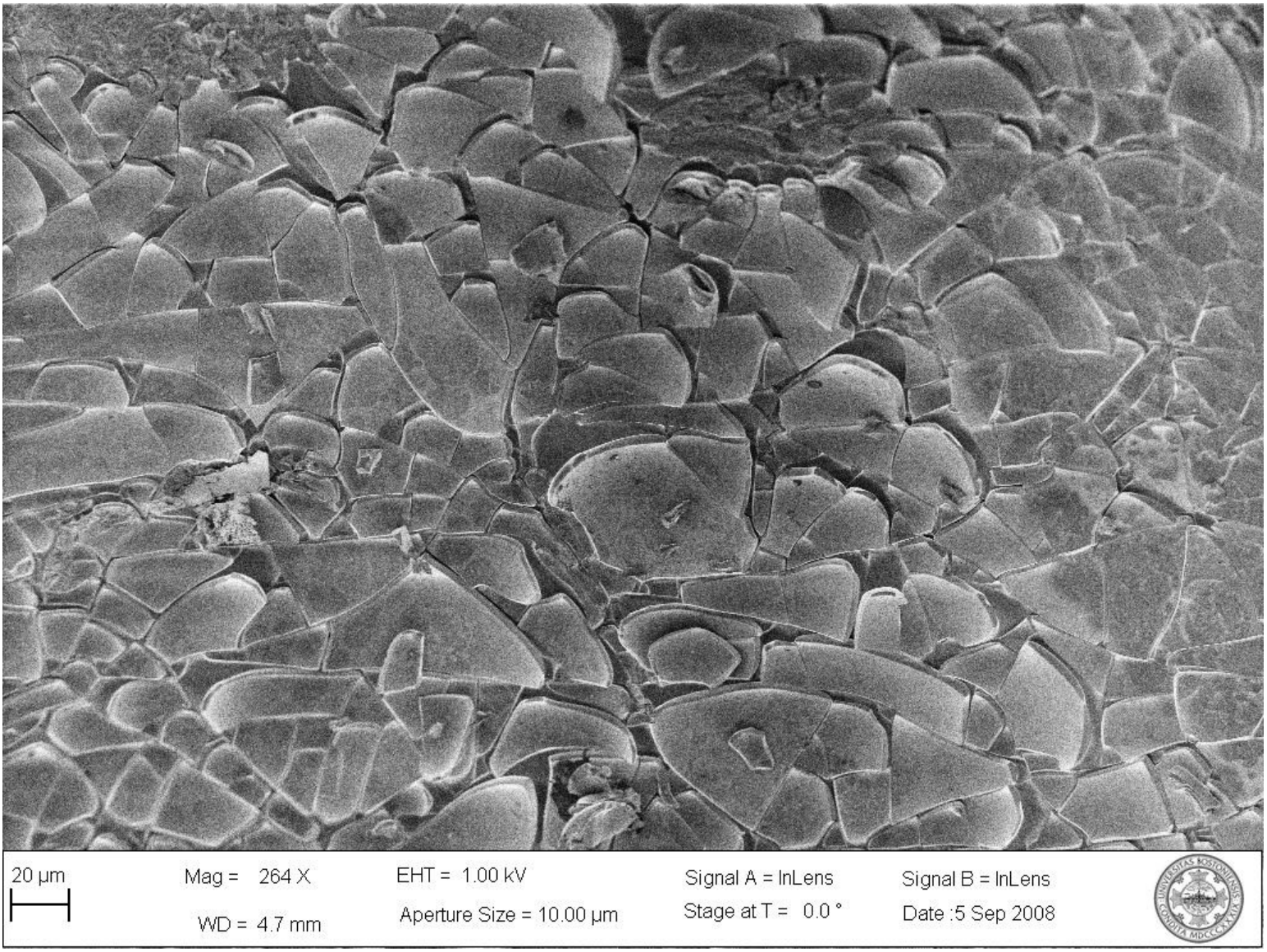
All files and images are stored in these folders

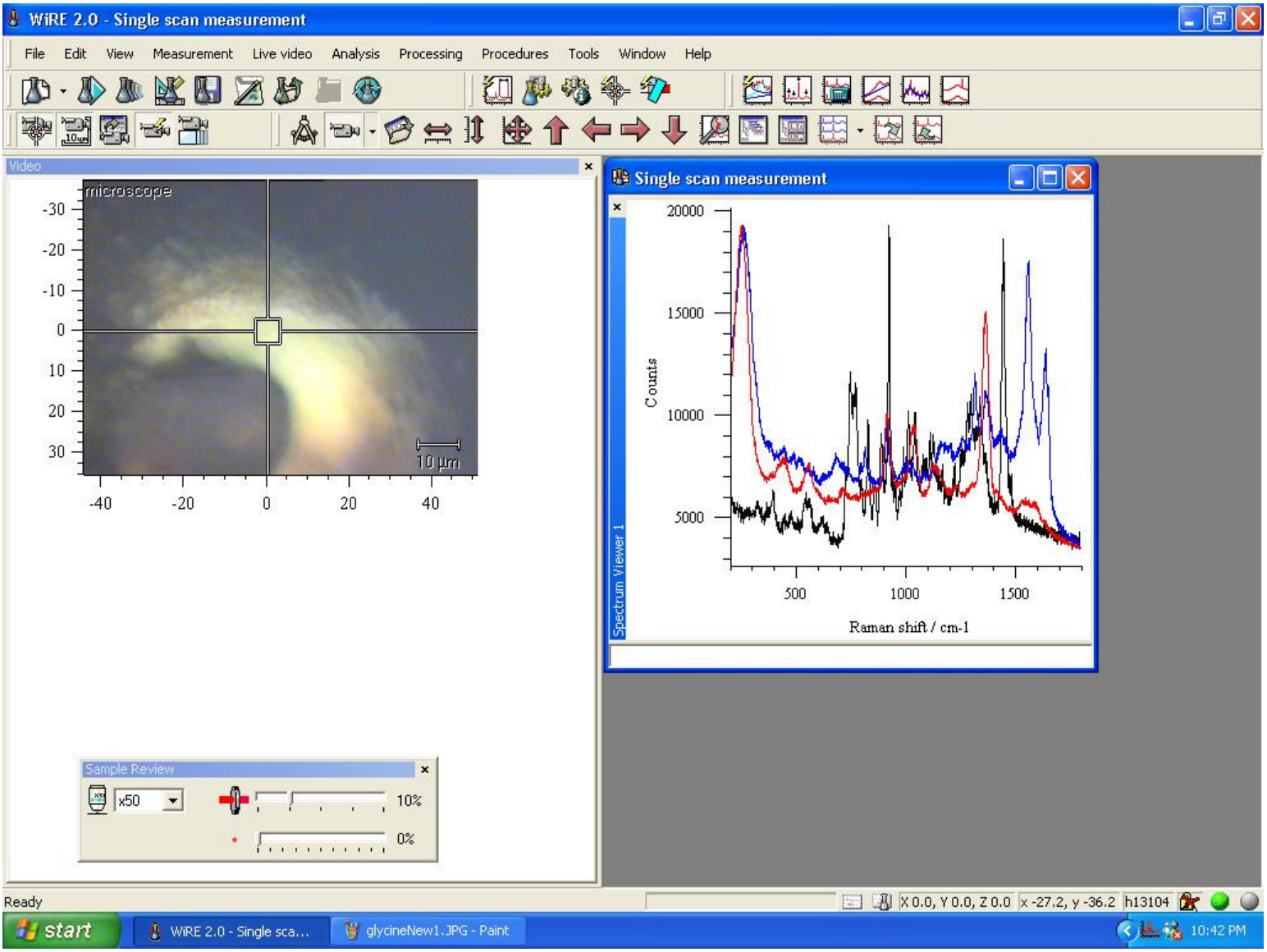
Set	Opening	Drying	Fast reduction	Slow reduction	Remarks
VII	1.5mm diameter	N2, 15hr	Pipette 12mg/50ml NaBH4 up and down the openings on the cover, then put in 12mg/50ml NaBH4 beaker, shaken by hand for 1-2min	Shake in 50x diluted NaBH4 on shaker, speed 2.5, 72 hr, leave in beaker after shaker stopped	3/8 substrates stayed in wells after shaking in the beaker, used the "8/19 40ul" sol, which has less gold solution compared to the normal "50ul" sol
VIII	1.5mm diameter	N2, 9hr	Color change only at the rim of the wells	Shake in 50x diluted NaBH4 on shaker, speed 2.5, 10hr	Ready for AFM or SEM


Pa 1 = 49.33 nm
Pb 1 = 5.2 °
Pa R1
Pa 1
100 nm
Mag = 50.00 K X
WD = 4.7 mm
EHT = 1.00 kV
Aperture Size = 10.00 µm
Signal A = InLens
Stage at T = 0.0 °
Signal B = InLens
Date :5 Sep 2008

Set VII


20 µm
Mag = 264 X
WD = 4.7 mm
EHT = 1.00 kV
Aperture Size = 10.00 µm
Signal A = InLens
Stage at T = 0.0 °
Signal B = InLens
Date :5 Sep 2008

Set VII



Glycine on set VII chip before SEM (normalized to the highest peak)
Black: plastic background
Blue: glycine spectrum from chip surface
Red: glycine spectrum from Ranjith's chip (positive control)