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2014 3 27

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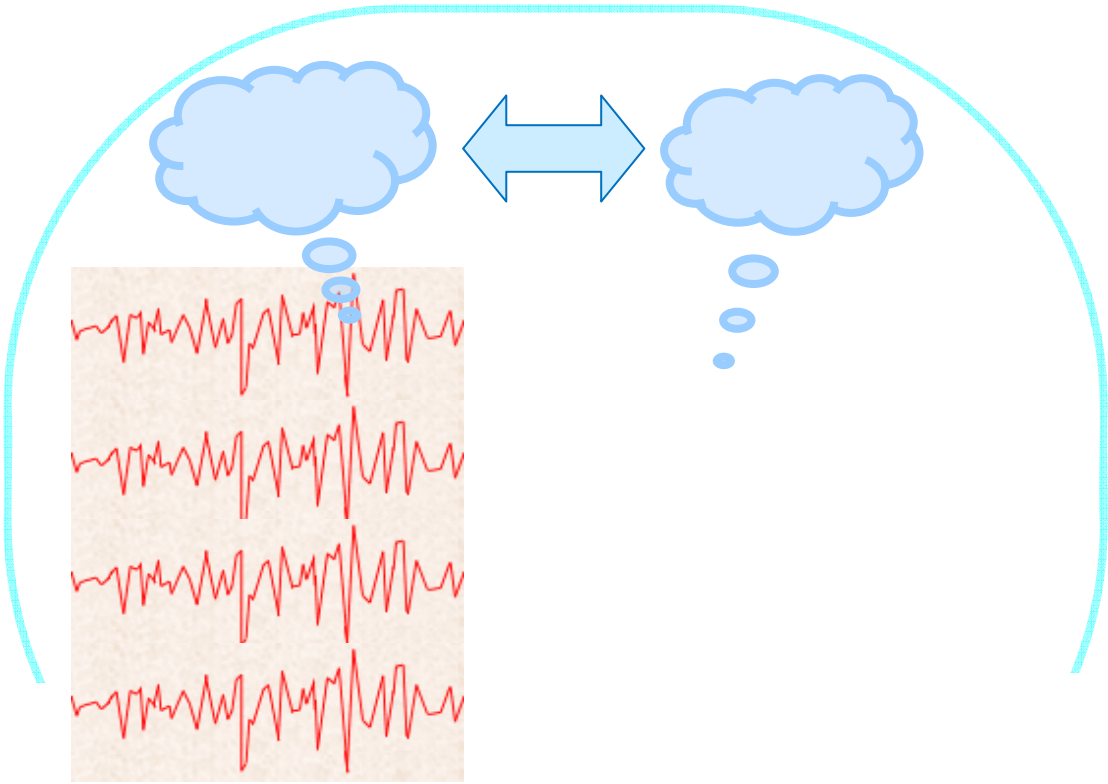
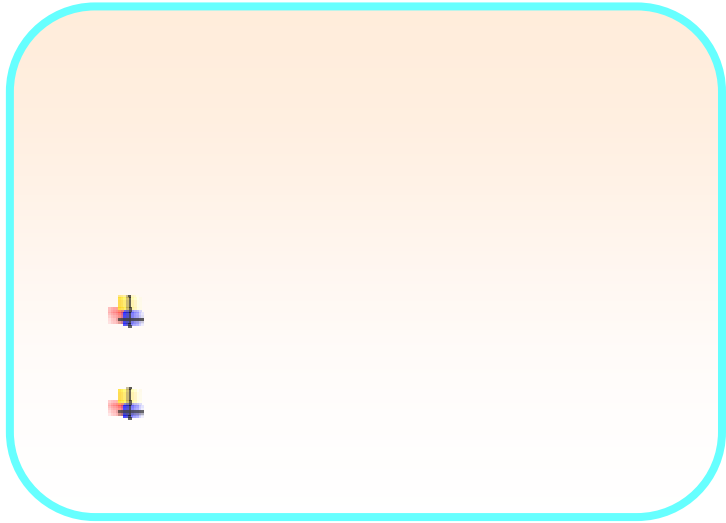
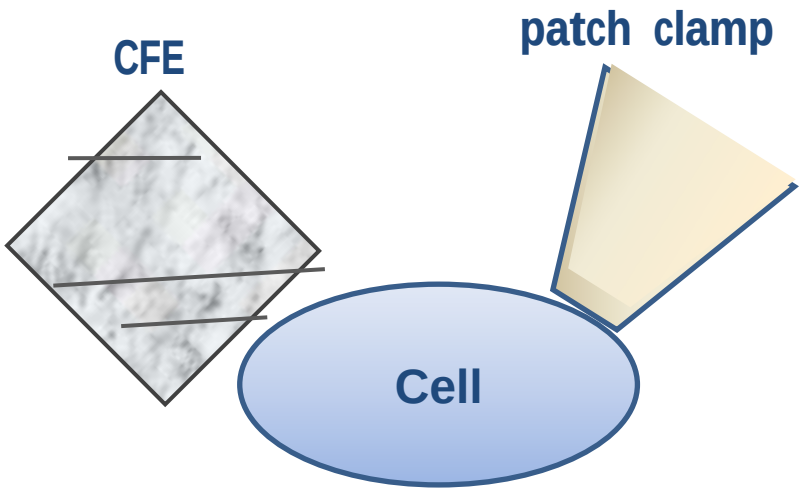
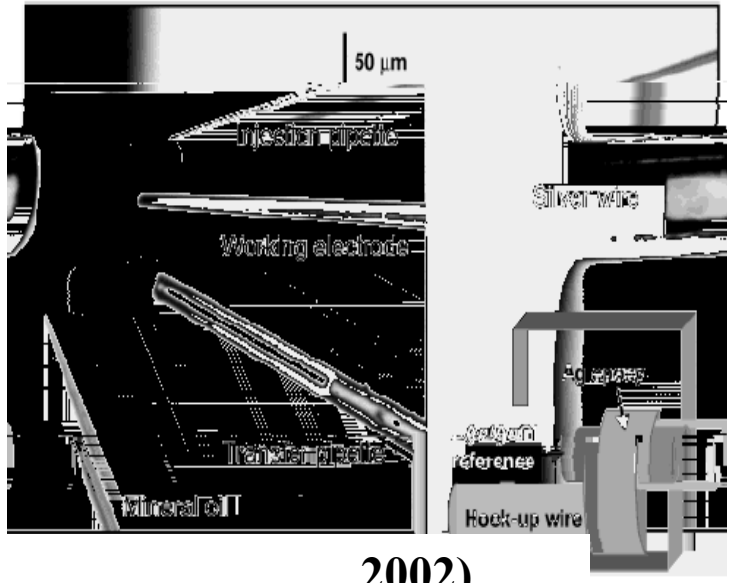





CFE
patch clamp
Cell


50 μm
Working electrode
Silver wire
Reference
Hook-up wire

2002)

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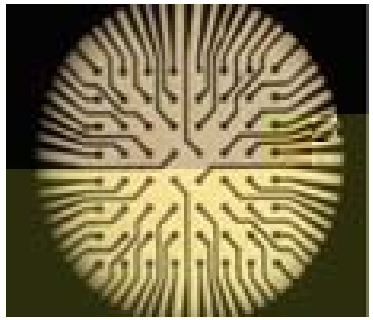
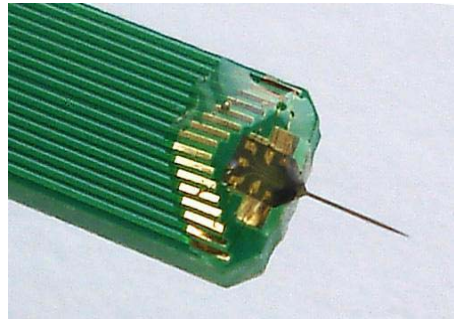
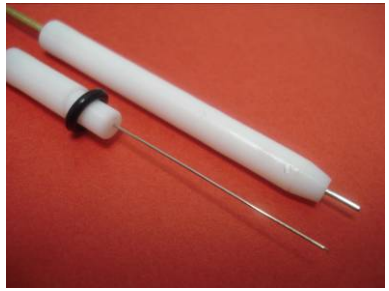
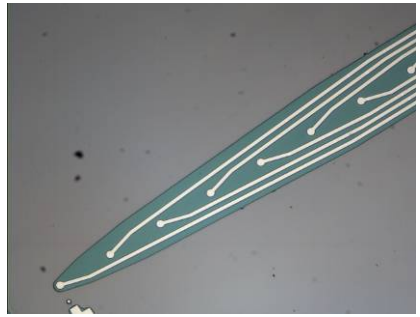
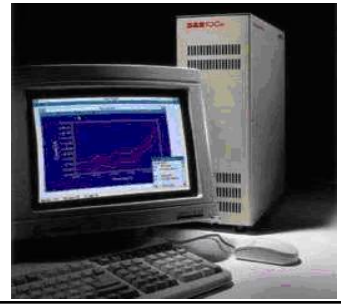
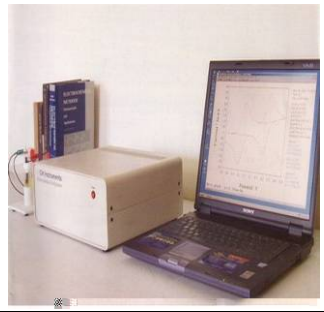
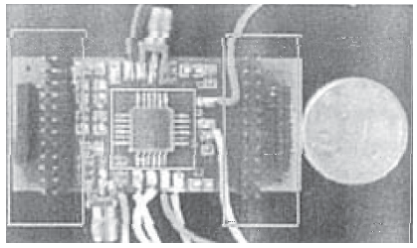








MCS MEA System 	Cerebus Neural Signal Processor 
BAS 100B/W 	CHI CHI 660D 
SWF-1B 	
LK98II 	

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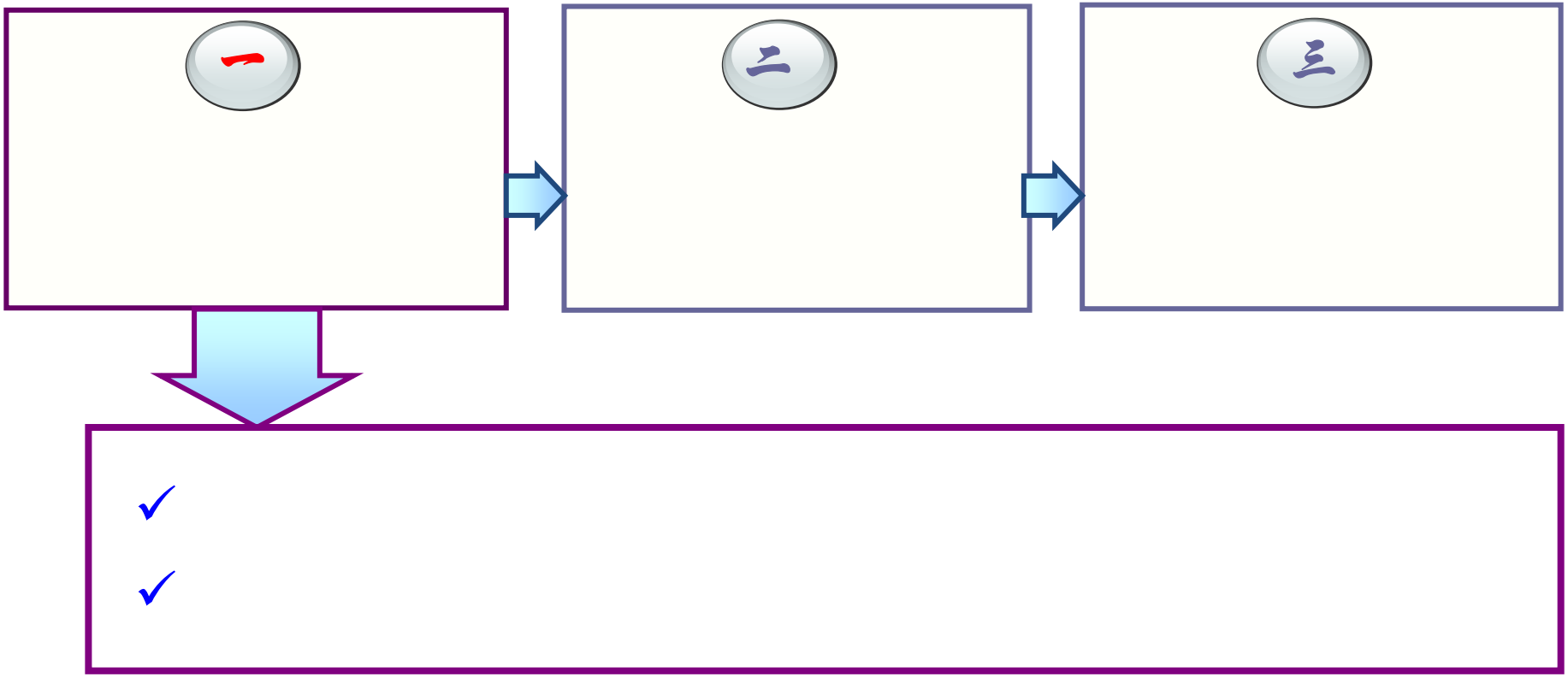
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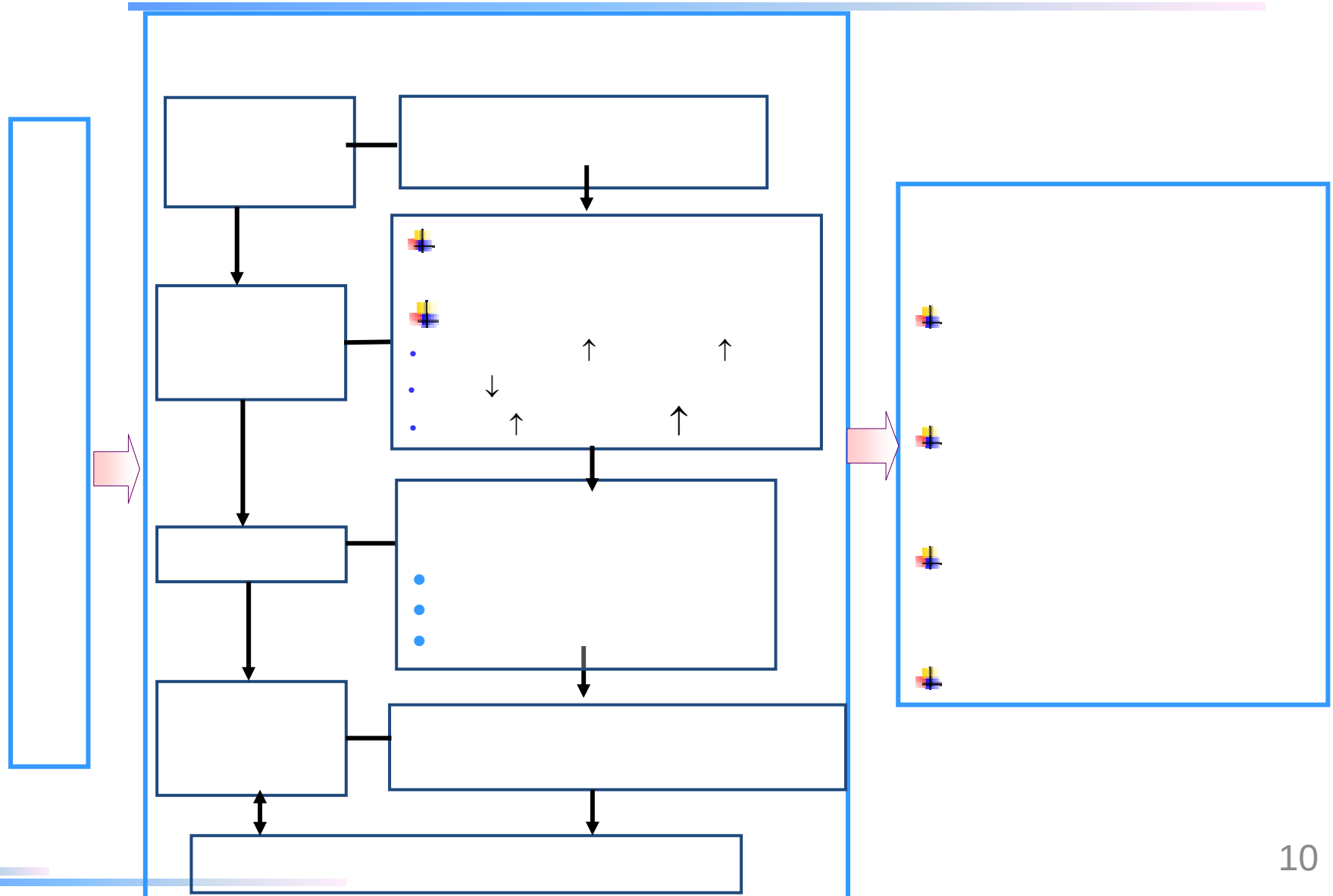
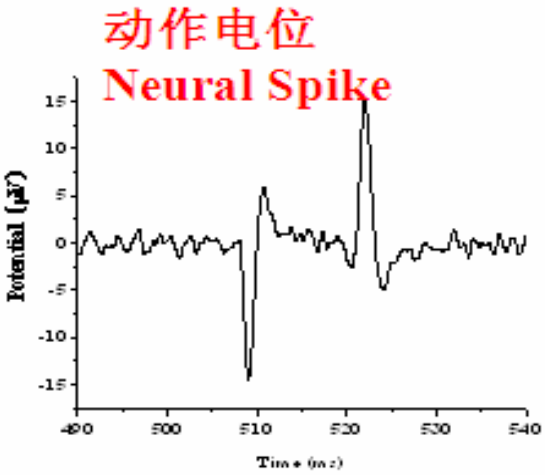
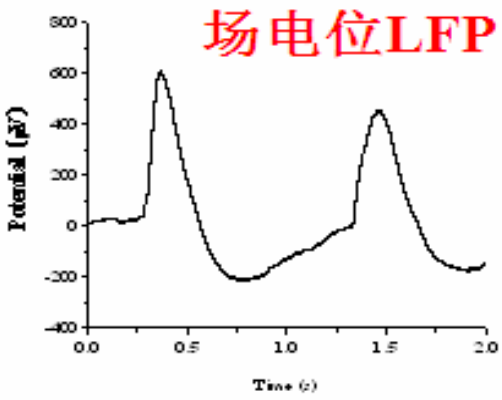
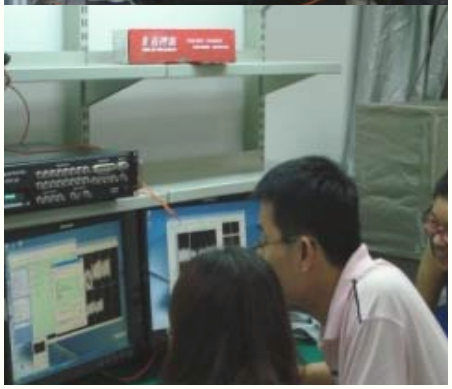


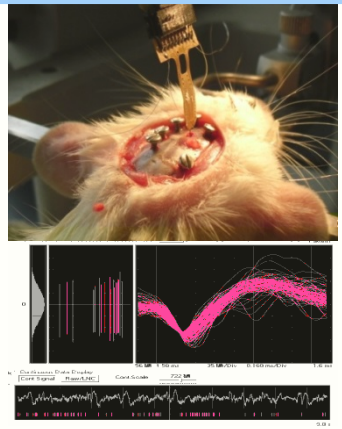


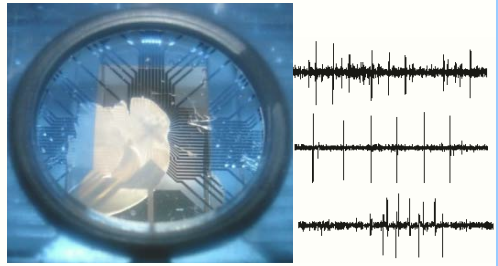


$$\text{glutamate} + H_2O + O_2 \xrightarrow{GluO_x} \alpha\text{-ketoglutarate} + NH_3^+ + H_2O_2$$

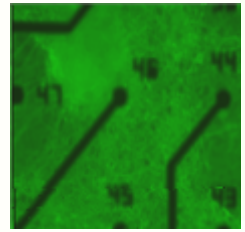


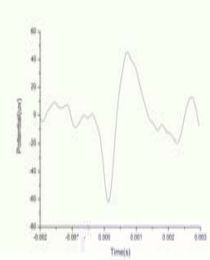

0 200 400 600 800 1000 1200 1400 1600 1800
646.300 sec
(m
s)
μ
V)





&





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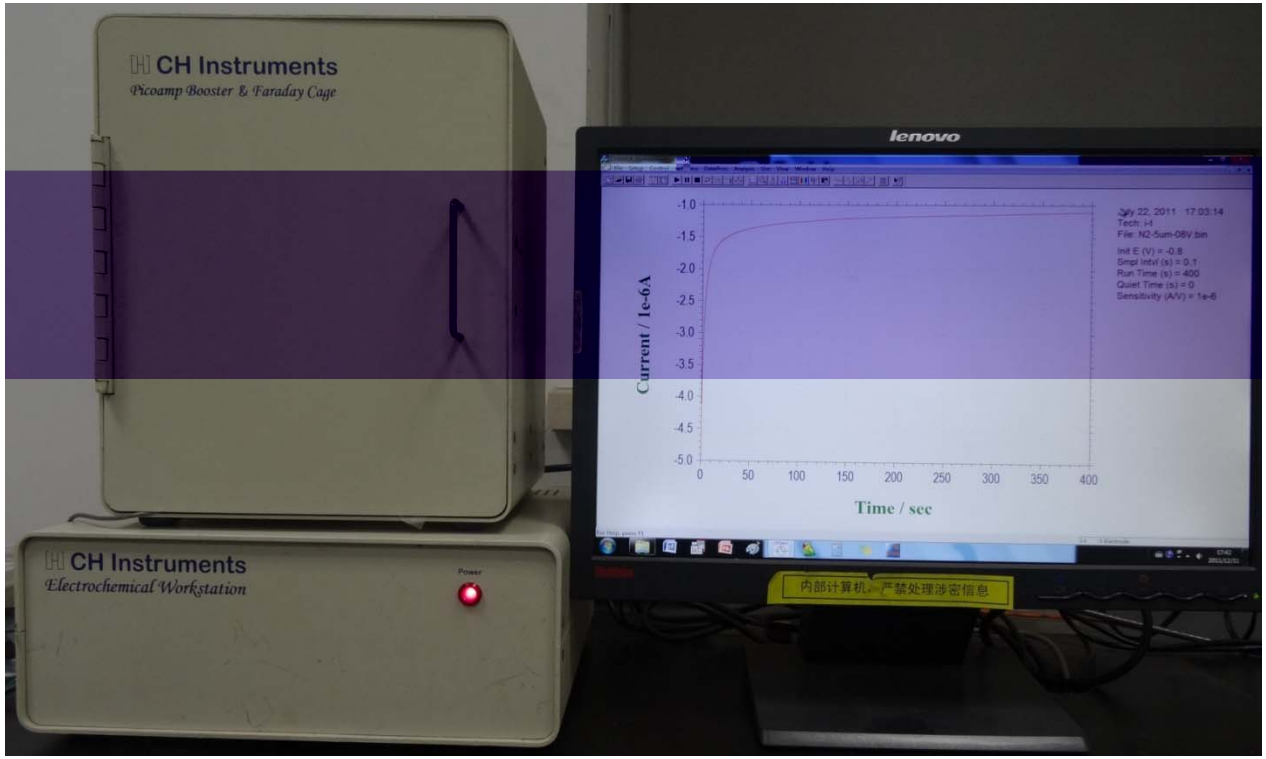
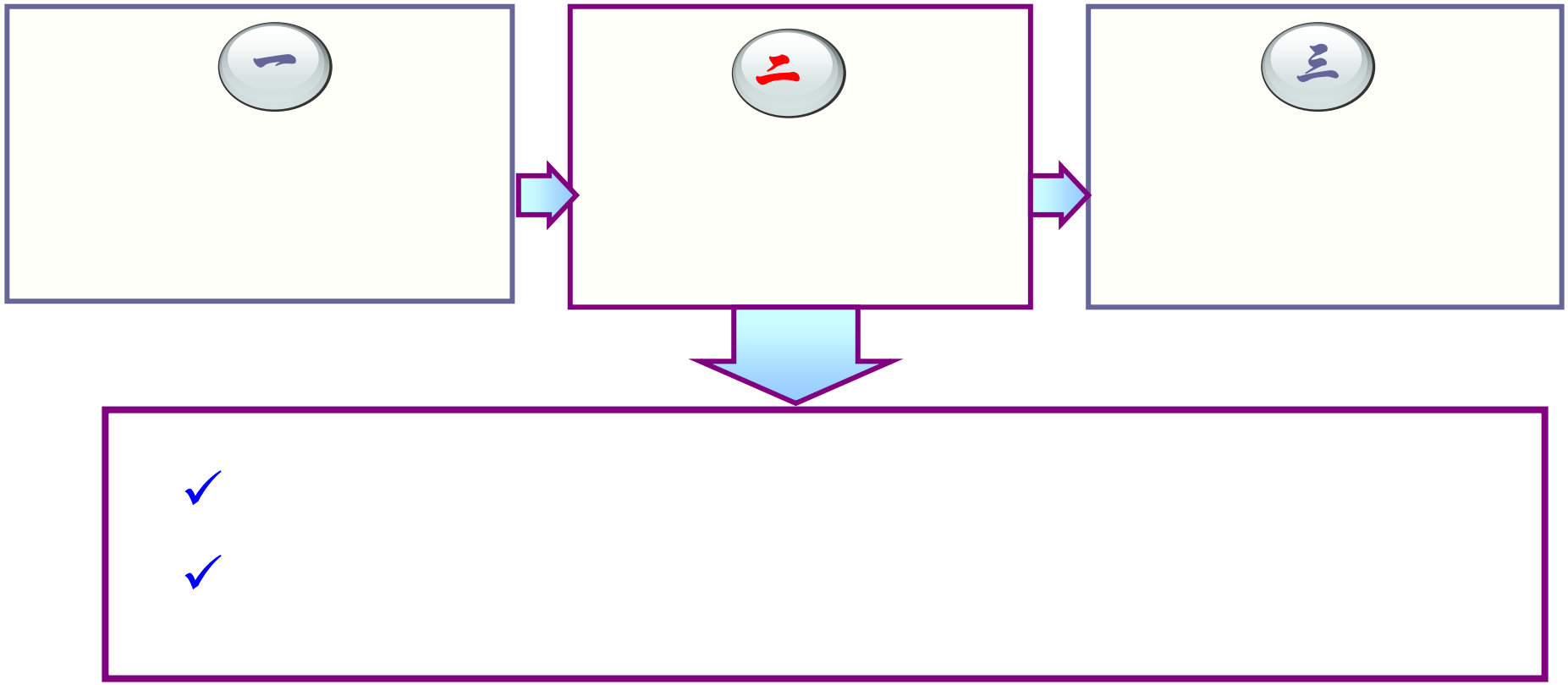

CH Instruments
Picoamp Booster & Faraday Cage
CH Instruments
Electrochemical Workstation
Power
lenovo
Current / 1e-6A
Time / sec
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
0
50
100
150
200
250
300
350
400
July 22, 2011 17:03:14
Tech: I-t
File: N2-5um-06V.bin
Init E (V) = -0.6
Smpl Intvl (s) = 0.1
Run Time (s) = 400
Quiet Time (s) = 0
Sensitivity (A/V) = 1e-6
内部计算机，严禁处理涉密信息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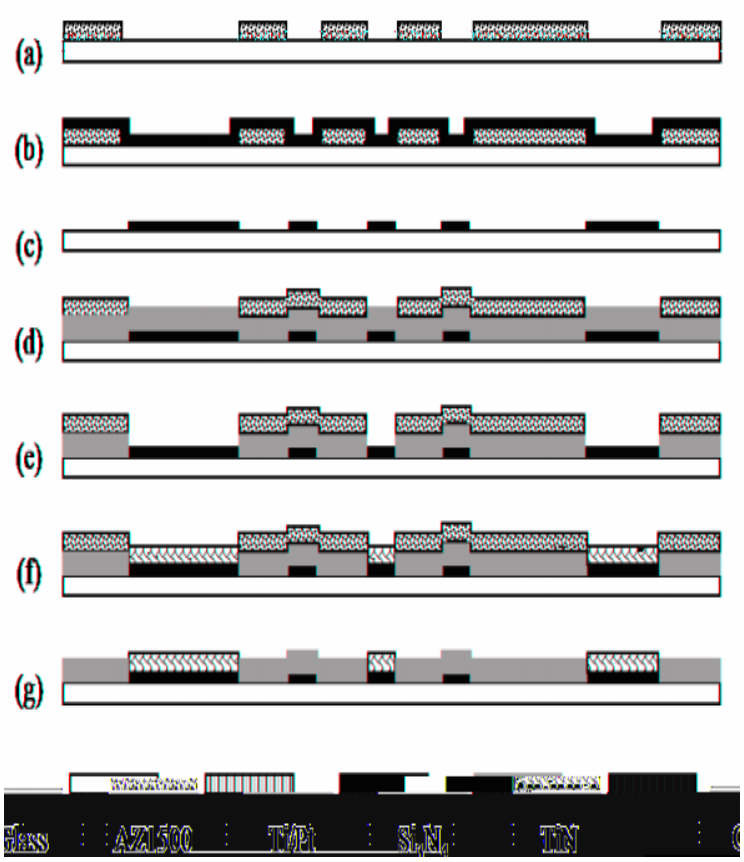
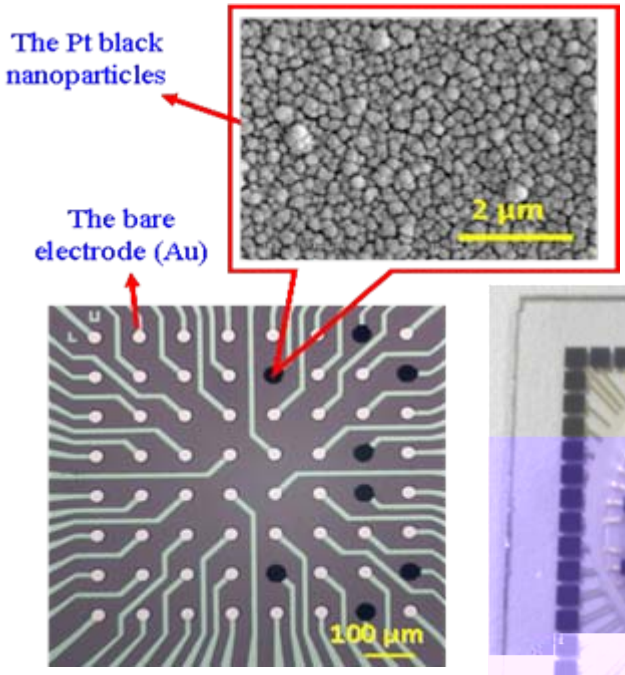
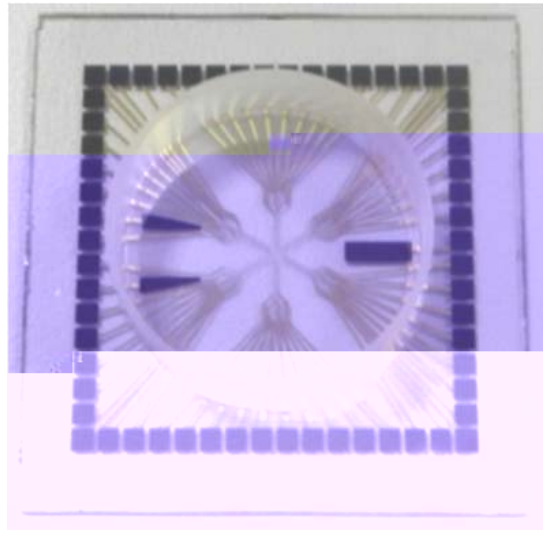
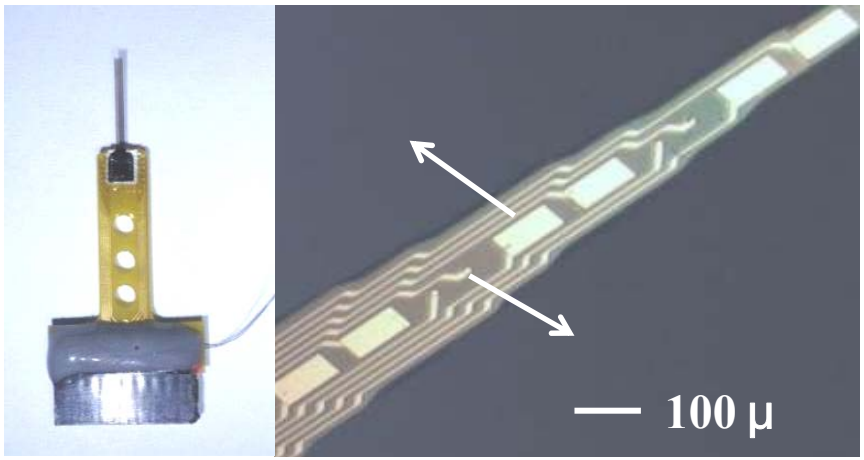


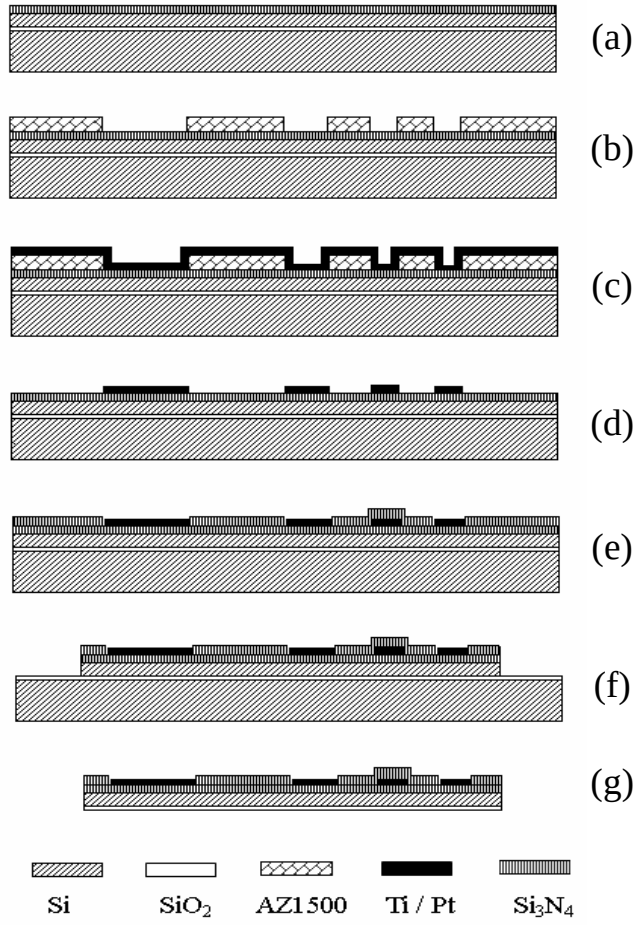
(a)-(c) Ti/Pt (d) Si3N4

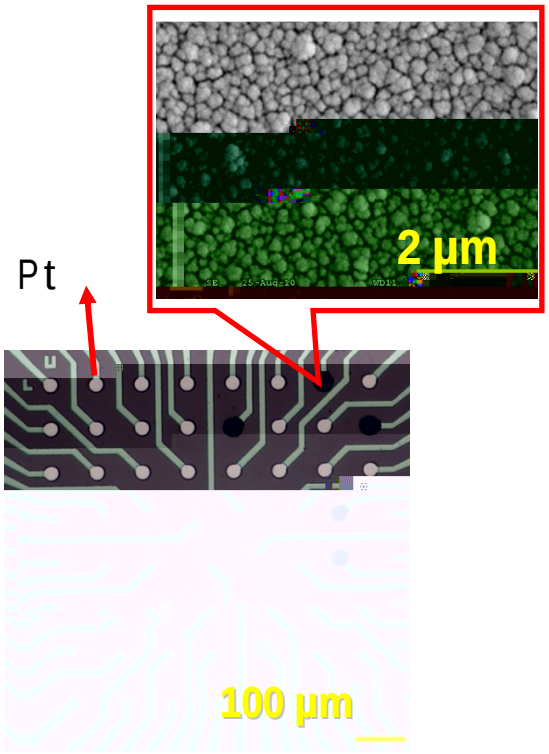
(e)REI (f)-(g) SiN

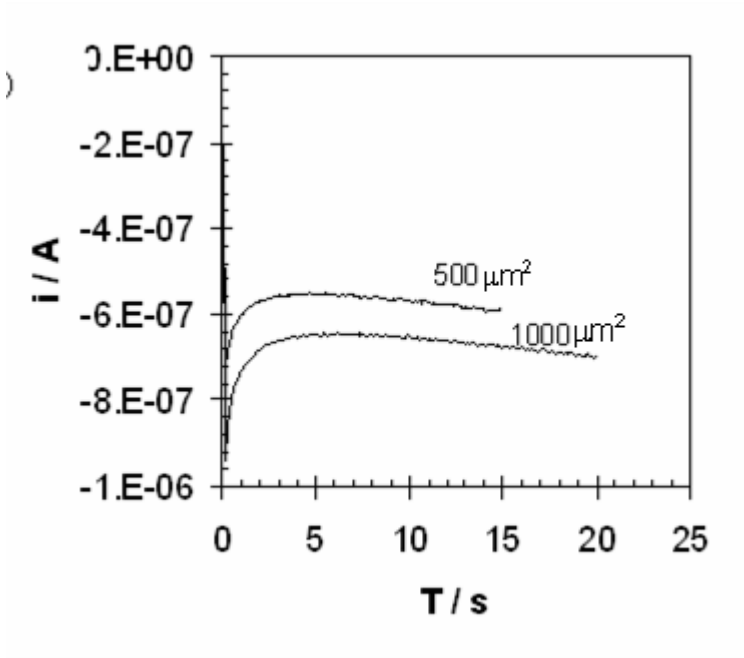





100 μ

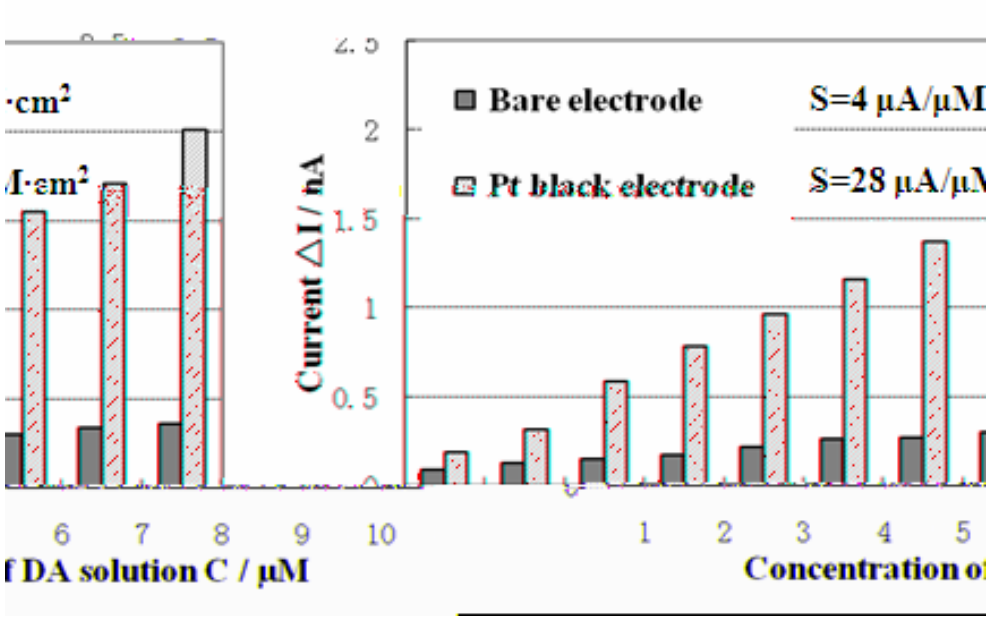

(a)
(b)
(c)
(d)
(e)
(f)
(g)
Si
SiO2
AZ1500
Ti / Pt
Si3N4





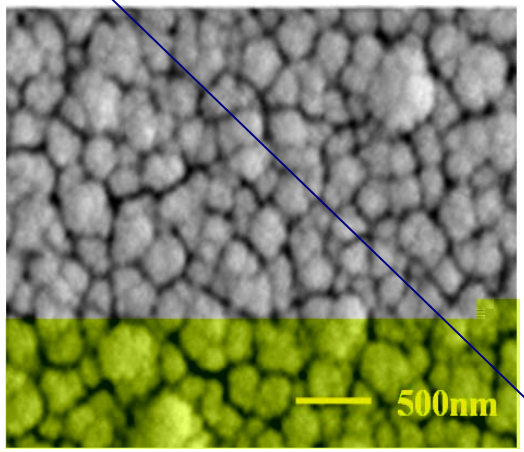
24 mM hexachloroplatinate
2.1mM lead acetate
P= –1.0 V

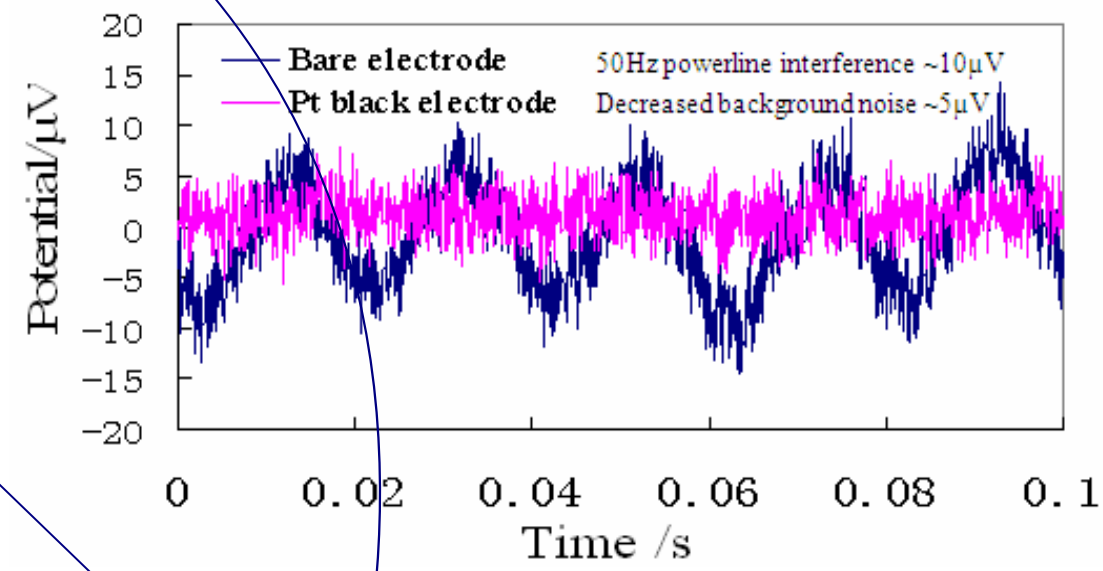
Y. Song/X. Cai et al.,*
22nd Anniversary World Conferenceon Biosensors, 2012, P1.16, Mexico.

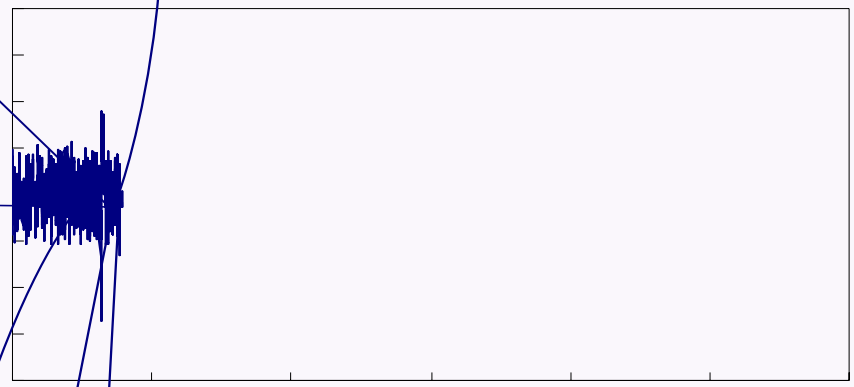


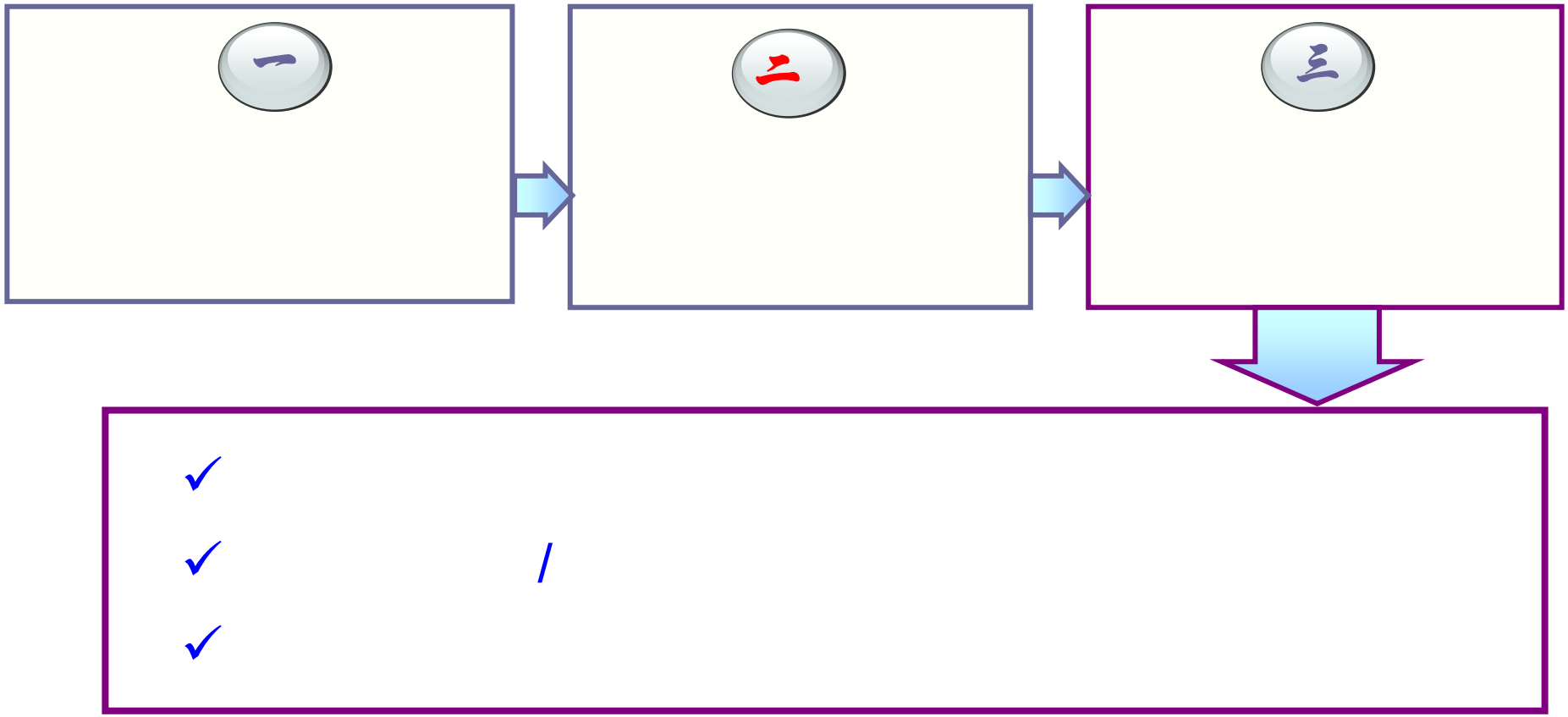
➢ ↑, ↑, ↑

Y. Song/X. Cai et al.,*
22nd Anniversary World Conferenceon Biosensors, 2012, P1.16, Mexico.


500nm


Bare electrode
Pt black electrode
50Hz powerline interference ~10μV
Decreased background noise ~5μV
Potential/μV
20
15
10
5
0
−5
−10
−15
−20
0
0.02
0.04
0.06
0.08
0.1
Time /s

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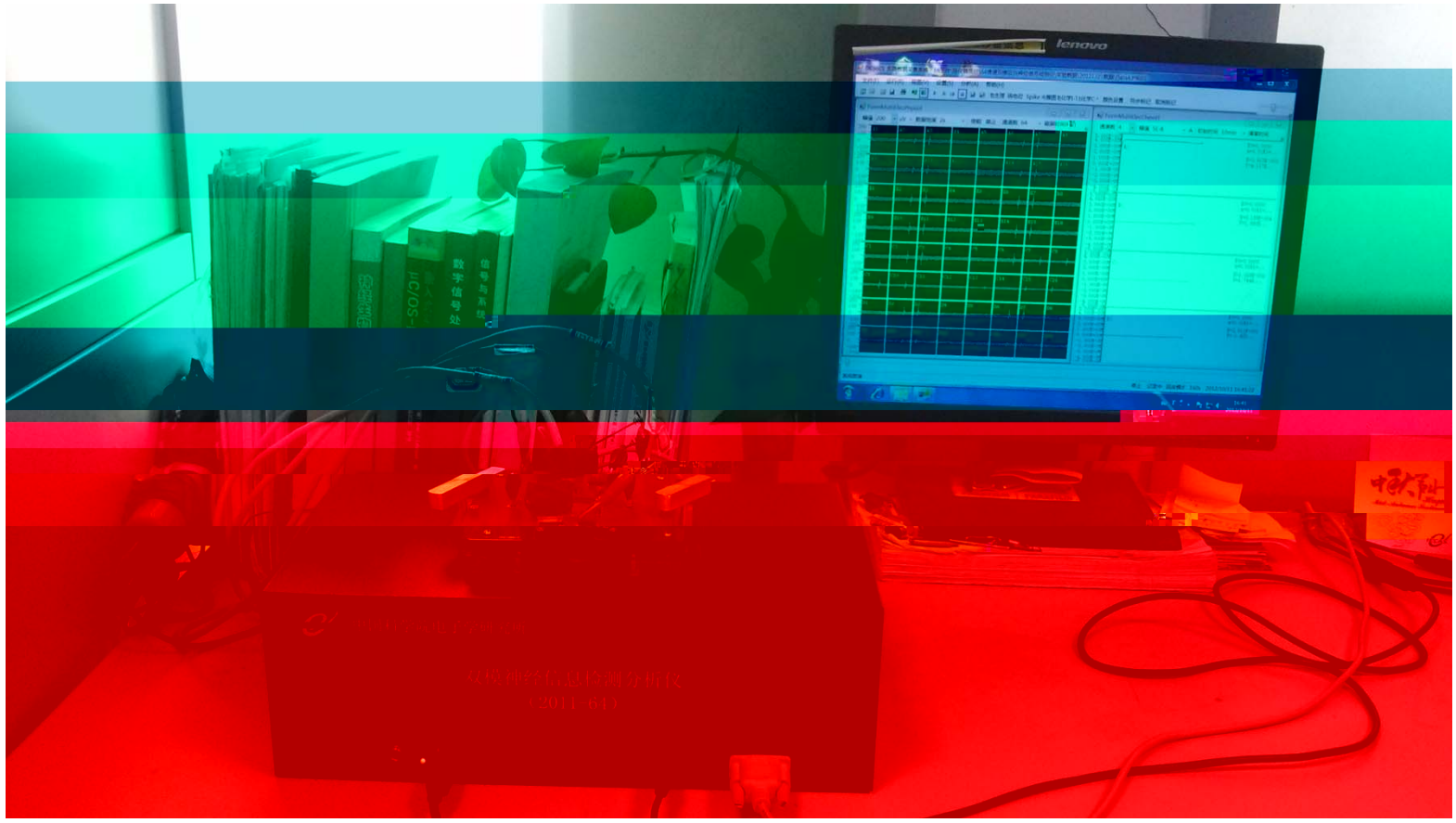
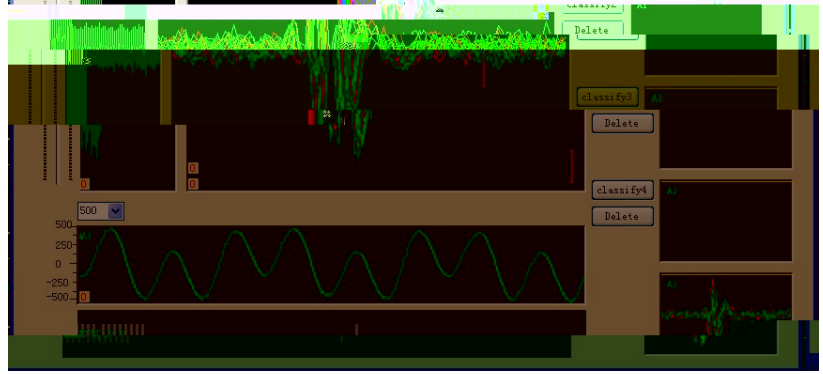
N. Lin/X. Cai et al.,
CN J. Anal. Chem., 2011, 35(5):770-775
S. Xu/ X. Cai et al.,
IEEE NEMS, 2013, 470-473. (EI)

ZL201010183442.6
ZL2010105138185

0. μ
0~50 kHz
1.67 μ Vrms
1100
-7mV~7mV
1~5000Hz
93.32dB/decade
90.37dB

-45~45 μ A


lenovo



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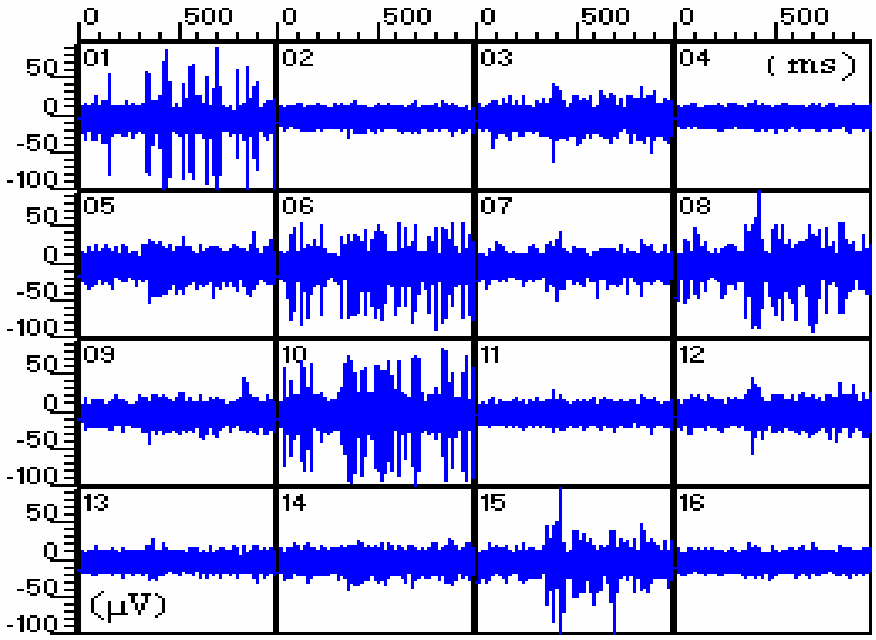
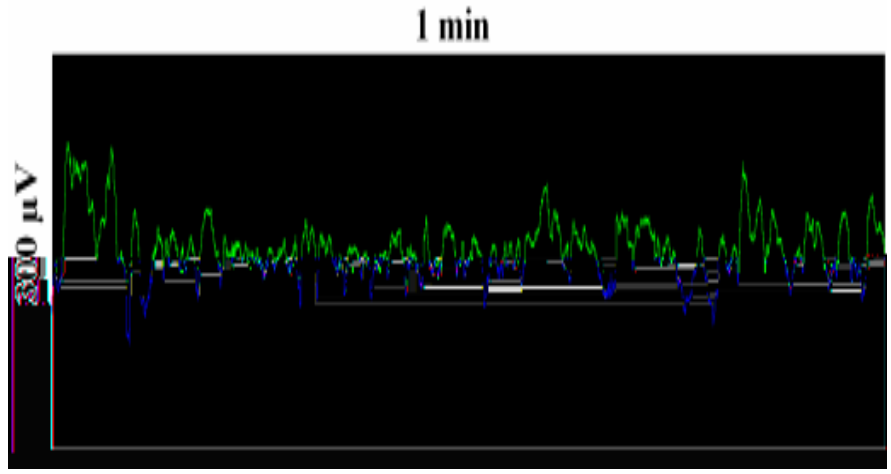
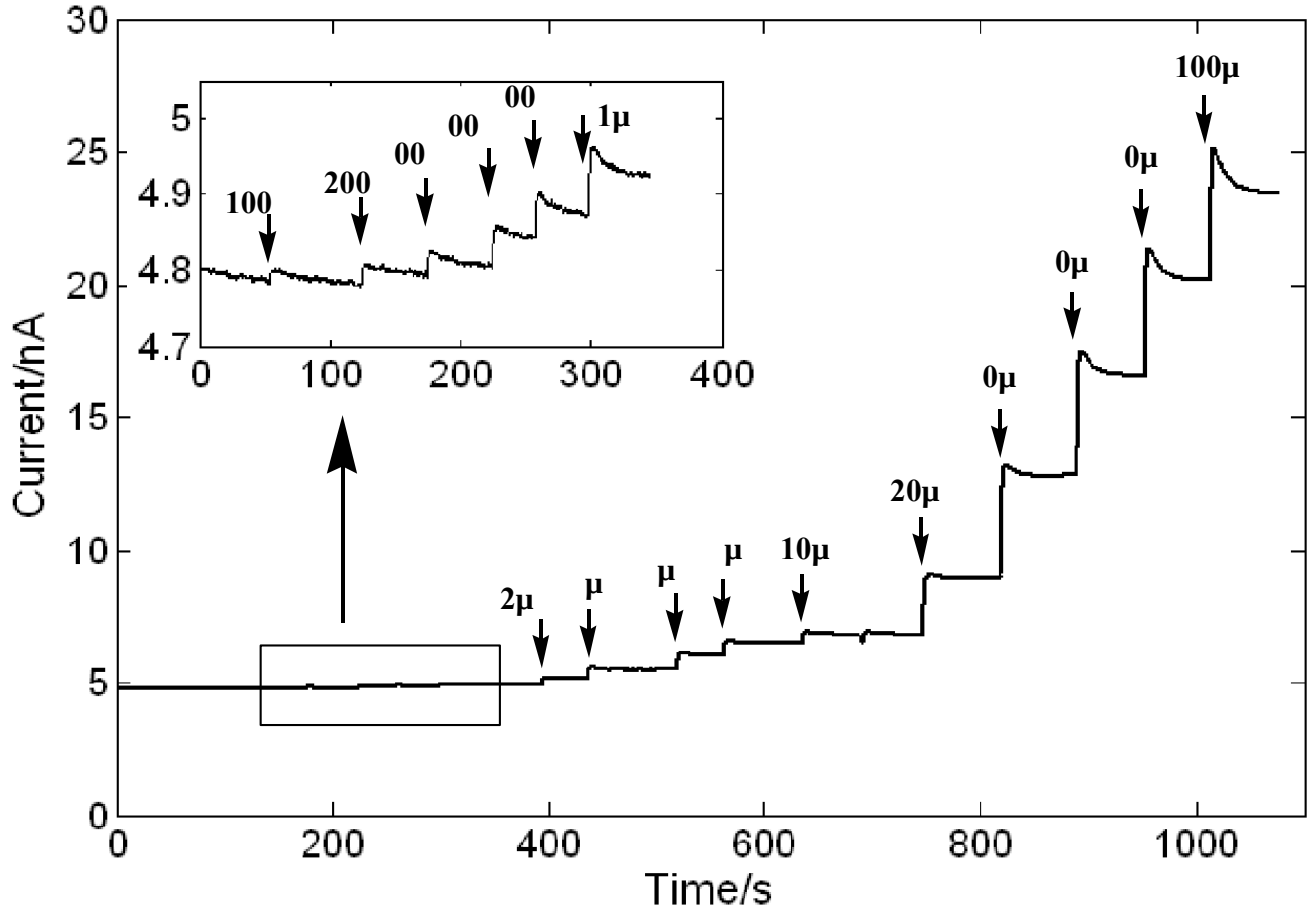
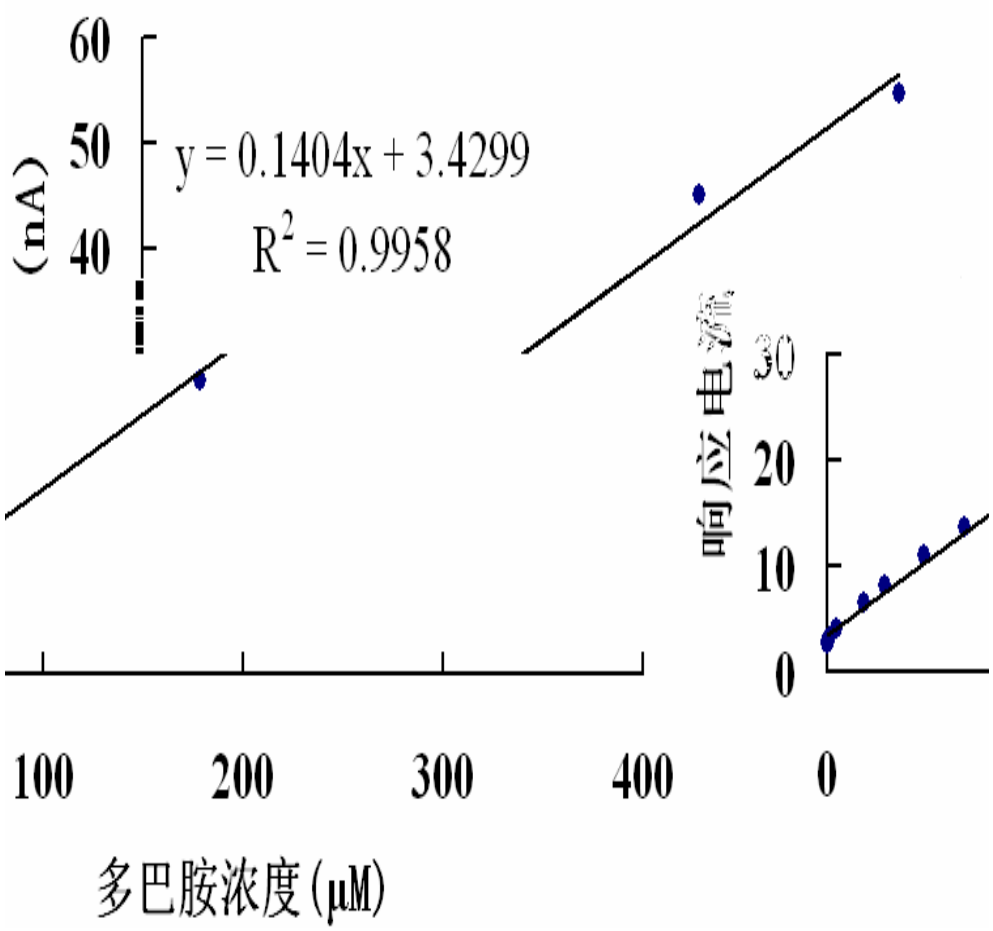
2013R11S146230

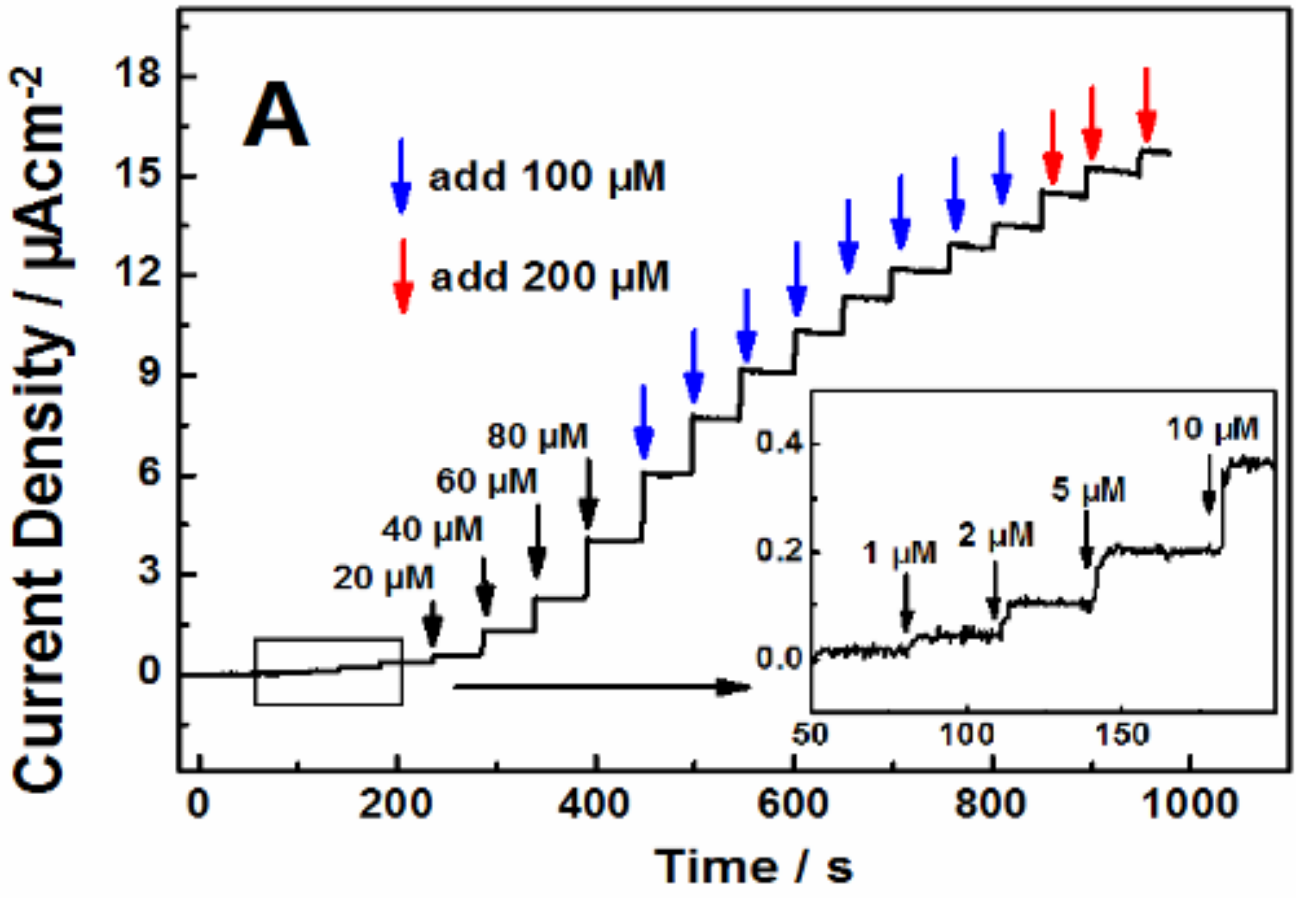




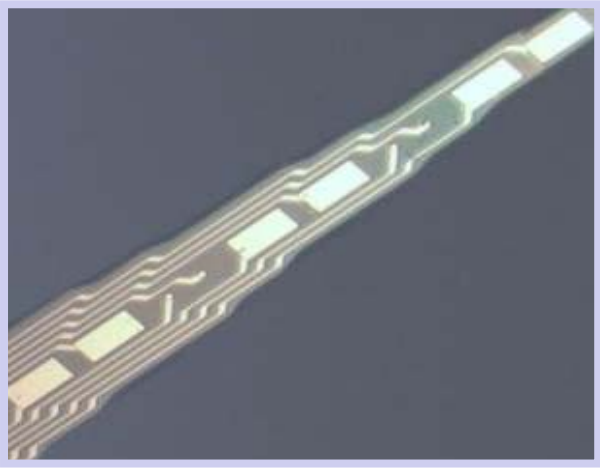
Y. Song/ X. Cai et al., Biosensors 2012, Cancun, Mexico, May 15-18, P1.16.*

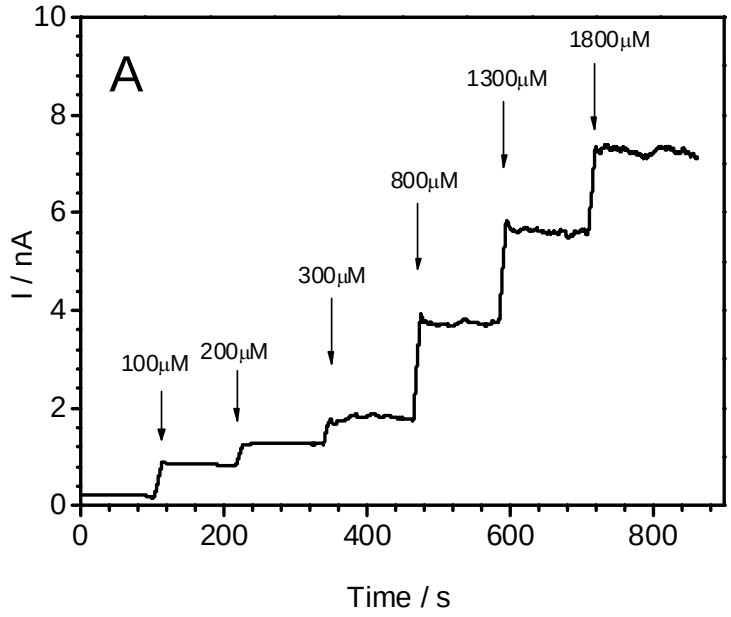

Current/nA
Time/s
0
5
10
15
20
25
30
0
200
400
600
800
1000
2μ
μ
μ
μ
10μ
20μ
0μ
0μ
0μ
100μ
4.7
4.8
4.9
5
0
100
200
300
400
100
200
00
00
00
1μ


60
50
40
(nA)
y = 0.1404x + 3.4299
R2 = 0.9958
100
200
300
400
多巴胺浓度(μM)
响应电流
30
20
10
0
0

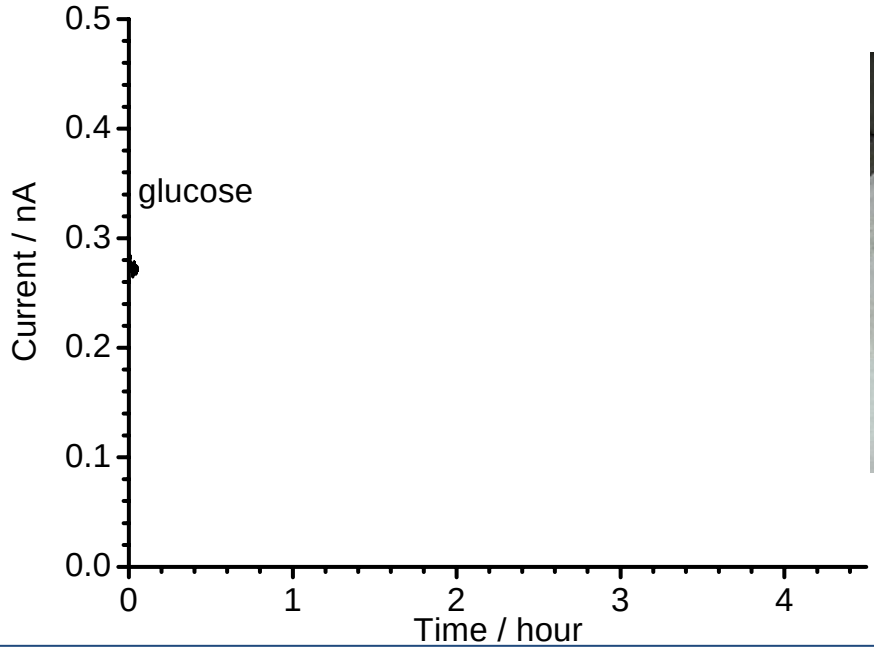


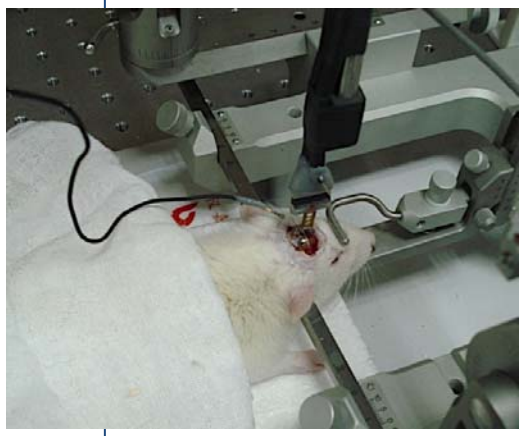
W. Shi/X. Cai et al., Biosensors and Bioelectronics 2012 38 100-106





W. Wei/ X. Cai et al., Biosensors & Bioelectronics, 2014, 55:66–71

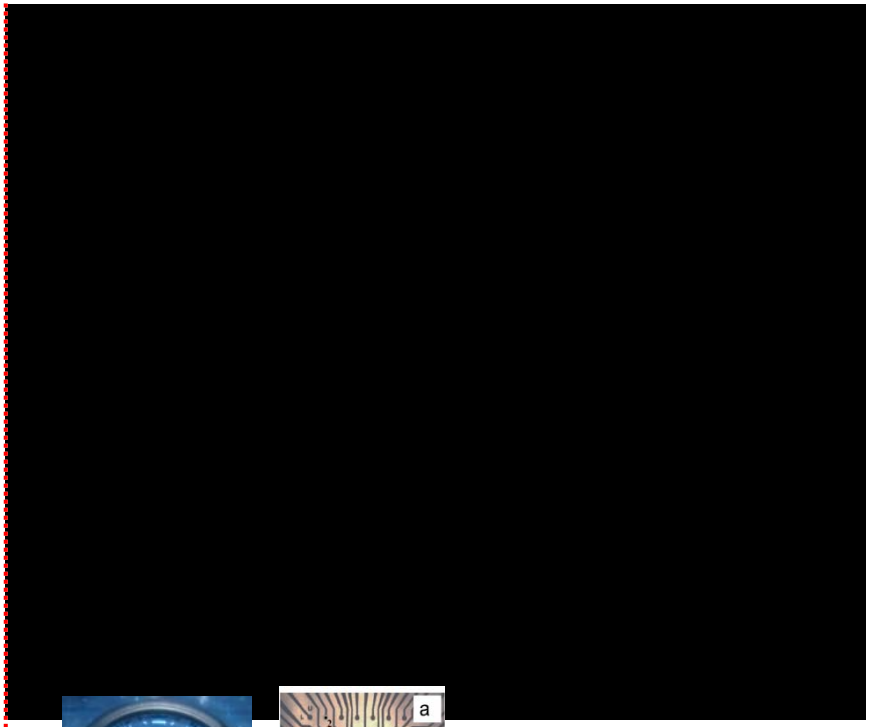


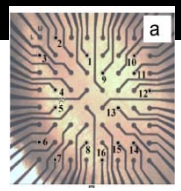


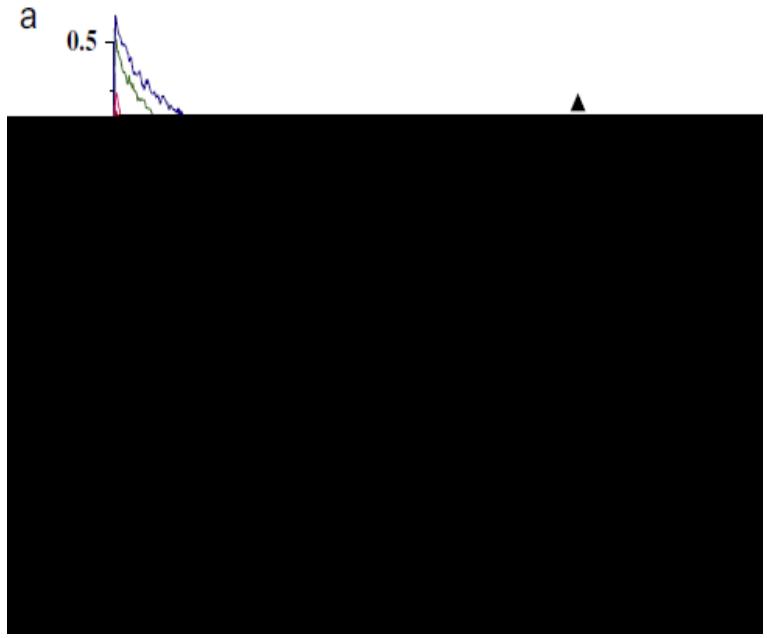
Reviewer : This presents an

brain glucose measurement.
It is ork.

Spike LFP



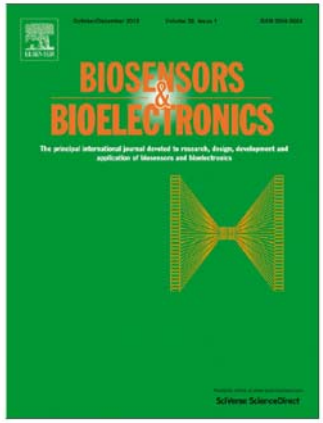




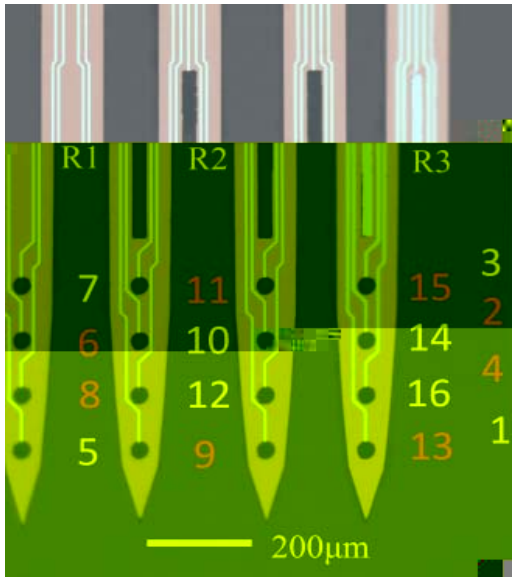
Y. Song/X. Cai et al., Biosensors and Bioelectronics. 2012, 38 416-420

Y. Song/ X. Cai et al., Biosensors & Bioelectronics 2012, 38(1): 416-420.*

Reviewer



The manuscript submitted by Song et al. describes the potential use of a 64-microelectrodes array for in vitro monitoring of electrophysiological and electrochemical recording on acute hippocampus slices of mice. The paper is a proof of principle on the possibility to optimize arrayed devices for dual mode neural recording. In general, the article is clear and well written. There is no doubt that this research field is of interest for clinical and diagnostic purposes, as well as for biosensors field.



Nafion

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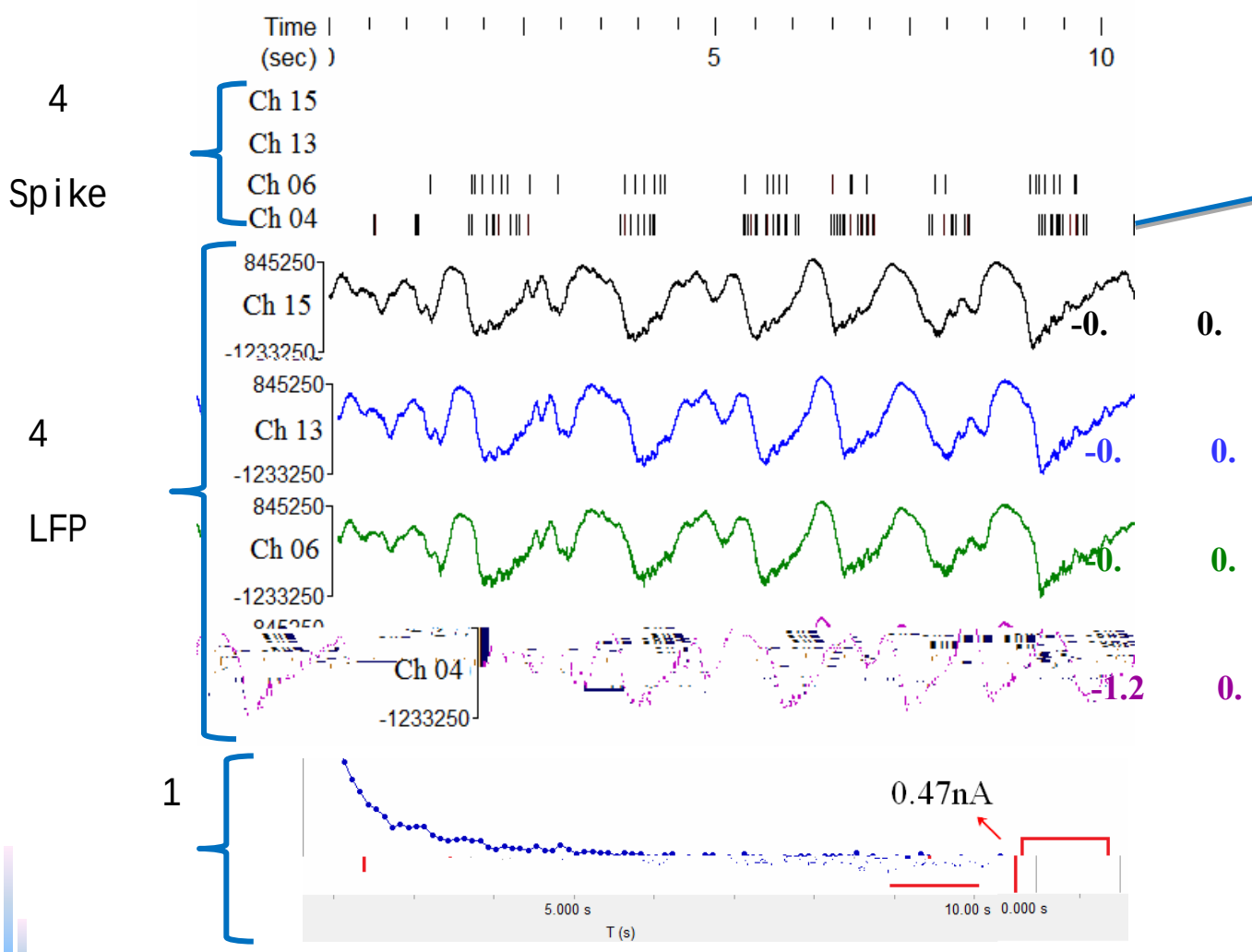
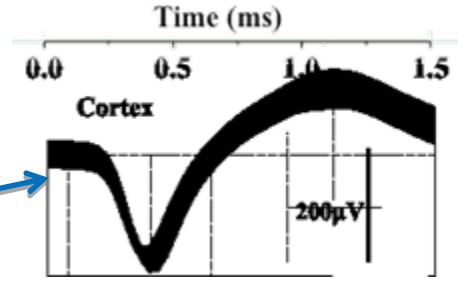
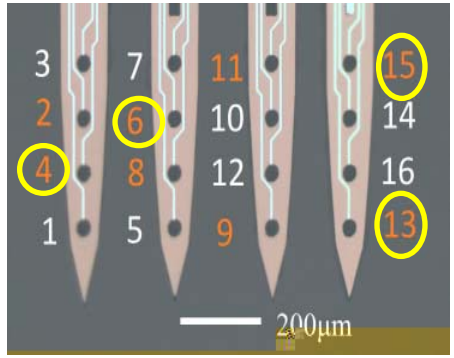
Y. Song/X.Cai et al., WACBE2013 00-15







Y. Song/X.Cai et al., WACBE2013 00-15

致谢