

Day 4

30<sup>th</sup> May 2019

Experiment 2019-05-30\_09h14m05s

removing Ta from VB region

	Exec	Scans	Start	End	Step	Values	Dwell	Lens	Epass	Acq. Time
VB280	280	5	35	-1	0.1		0.2	MA	10	09:23:41
VB47	47	2	35	-1	0.1		0.2	MA	10	
VB100	100	2	35	-1	0.1		0.2	MA	10	09:33:26

~~VB280~~

9:42 Ar Sputtering @20mA 1.5kV

10:00 Annealing @923K

VB280 280...

10:16:56

10:25 Ar Sputtering @20mA 1.5kV 10 min

10:41 Annealing @953K 2min → @923K 10min

in Aratase

	Exec	Scans	Start	End	Step	Values	Dwell	Lens	Epass	Acq. Time
11:01 VB280	280	5	35	-1	0.1		0.2	MA	10	11:01:08
C1s	385	5	290	280	0.1		0.2		20	
O1s	630	5	540	560	0.1		0.2		20	
Ti2p	560	5	480	450	0.1		0.2		20	
survey	610	1	560	0	0.5		0.1		80	
VB47	47	2	35	-1	0.1		0.2		10	11:24:00

Heat evaporator for MBA dose and transfer TiO<sub>2</sub> (temperature monitor on PC)

MBA dose

11:58 Start T=91°C P=9.6×10<sup>-7</sup> mbar I<sub>A</sub>=2A

12:18 End T=108°C P=1.3×10<sup>-6</sup> mbar → 20 min

Transfer Position

X=15.0 → <sup>New</sup>15.5

Y=3.5

Z=25.2

θ=23

# MBA Evap Dose

Name	Exec.	Scans	Start	End	Step	Values	Dwell	Lens	Epass	Acq. Time
Survey	610	1	560	0	0.5		0.1	MA	80	12:28:13
O 1s	630	5	540	524	0.1		0.2		20	
Ti 2p	560	5	480	450	0.1		0.2		:	
C 1s	385	5	290	280	0.1		0.2			too narrow
C 1s	385	5	295	280	0.1		0.2			
S 2p	265	5	180	154	0.1		0.2		20	
VB47	47	2	35	-1	0.1		0.2		10	
VB40	40	2	35	-1	0.1		0.2		10	Acq. Time 13:01:00

## NEXAFS (hexafs 1st dose MBA) Scan Mode: Constant Final State CFS

Positions	NE (40 Off NI)	NI	60 Off	50 Off	30 Off	20 Off	10 Off
X	9.2	8.75	7.95	8.05	8.95	8.55	8.55
Y	11.25	12.9	12.75	12.75	12.75	12.75	12.75
Z	10.7	10.7			10.7		
$\theta$	209	250	190	200	220	230	240

	Scan	Start	End	Ekin	Step	Values	Dwell	Lens	Epass	Acq Time
3:33 Spectrum	1	275	310	270	0.1		4	MA	50	Stopped at 305.2
14:28:55 145 Off NI	1	275	310	270	0.1		4	MA	50	Stopped at 308.39
45 Off NI end	1	308	310	270	0.1		4	"	"	
(40 Off NI end)	1	308	310	270	0.1		4	"	"	
50 Off NI	5	275	310	270	0.1		"	"	"	
(Normal Incidence)										
65 Off NI	1	"	"	"	"					Stopped at
(60 Off NI)	1	"	"	"	"		"	"	"	
55 Off NI	1	"	"	"	"		"	"	"	
(50 Off NI)	1	"	"	"	"		"	"	"	
35 Off NI	1	"	"	"	"		"	"	"	Stopped at 299.9
(30 Off NI)	1	"	"	"	"		"	"	"	
35 Off NI end	1	298	310	270	"		"	"	"	
(30 Off NI end)	1	298	310	270	"		"	"	"	
25 Off NI	1	275	310	"	"		"	"	"	Stopped at 304
(20 Off NI)	1	275	310	"	"		"	"	"	
25 Off NI end	1	303	310	"	"		"	"	"	Stopped at 308
(20 Off NI end)	1	303	310	"	"		"	"	"	
15 Off NI	1									
10 Off NI	1									

Change to 20  $\mu$ m slit (wr, 152)

NE 20 $\mu$ m slit	1	283.5	286.6	270	"		"	"	80	Similar that 30 $\mu$ m back to (wr, 142)
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⊗ NOTE: On 20 Off, scans stopped, first we try to restart software but didn't work, we had to restart PC and begin a new experiment (2019-05-30 19:11:43)



Experiment 2019-05-31\_12h57m54s

MBA Multilayer

Core levels 304 K

Name	Eexc	Scans	Start	End	Step	Values	Dwell	Lens	Epass	Acq. Time
Survey 1h MBA	610	1	560	0	0.5		0.1	MA	80	13:10:29

\*No much change, back for longer time dose

13:13 1.3 A  $P = 5.5 \times 10^{-7}$   $T = 105^\circ\text{C}$  Start = 1.5 h (+1)

14:33 1.2 A  $P = 6.89 \times 10^{-7}$   $T = 124^\circ\text{C}$  End 2.5h dep.

Name	Eexc	Scans	Start	End	Step	Values	Dwell	Lens	Epass	Acq. Time
14:44 Survey 2.5h MBA	610	1	560	0	0.5	121	0.1	MA	80	14:44:33
O 1s	630	5	540	524	0.1		0.2	"	20	
Ti 2p	560	5	480	450	"		"	"	20	
C 1s	385	5	295	280	"		"	"	20	
S 2p	265	5	175	158	"		"	"	20	
B 4f	47	2	35	-1	"		"	"	10	
B 4o	40	2	35	-1	"		"	"	10	15:13:09

Annealing  $\rightarrow$  Core levels 353 K

Survey 15:28:53

VB 40 15:56:21

Core levels 373 K

Survey 16:01:53

VB 40 16:43:24

Core levels 393 K

Survey 16:51:04

VB 40 17:17:01

Core levels 413 K

Survey 17:22:57

VB 40 18:01:01