

# **PXD Production**

- PXD9-7 defect repair
- PXD9-7 and PXD9-8 status





ACTN - Mask

Purpose : Al2N etching removes test adaptor from matrix

Some defects can be repaired directly: D-D For others the impact can be defused: D-S, G-D

Shorts	W31	W37	W38	W40
IF	D-D + D-S	0	1 strange	0
OF1	0	1 strange	0	0
OF2	0	0	0	D-D
OB1	G-D	0	4 D-S	0
OB2	0	0	0	0

No actions on ,strange' (short between non neighboring drain lines)

### Drain-Drain Shorts



Actually not very crucial (does not harm DCDs) but since have to remove the TestAdaptor anyway ... we can repair the defect columns



#### Drain-Drain Short repair



2 6 39

商湯引

同時間 副時

THE REAL PROPERTY AND

CALLER CONTRACTOR STATES

Covering existing metal2 lines again with photo resists Overetching the whole module



#### Drain-Source Short W38 - OB1



DCD input would be connected t o Vsource (+5V refered to DCD) Disconnect all shorten lines directly at DCD bumps



# Drain-Gate Short W31-OB1



Sets the potential of the whole drain line to Gate voltage In case of positive Gate off (+3V) -> Drain and Source are swapped Potential barrier to backside disappears -> huge current from Sw to Back disconnect all implants by removing the affected Drain line







## 4 batches

PXD9-7 4 wafers ongoing (another 'pilot' run) PXD9-8 9 wafers hold

PXD9-96 wafersscheduledPXD9-107 wafersscheduled





PXD9-7 (31,37,38,40 + 3 dummies)	Schedule
Measurements (Daniel's talk)	done
ACTN - 2nd Al etch (Test Adaptor remove and defect repair)	in progress
COAN + WINP (Oxide etch top and back side)	3 weeks
CO3N (3. via)	PXD9-9 can start
BCBP (edge protection for backside thinning)	
CU1N (Copper)	2 months
Final measurements (ATG)	
BCBN	
Cutting	middle of July





PXD9-8 (32,33,41-47 + 1 dummy)	Schedule	
AL1N (first metal)	Wait for GO	
CO2N (2nd via)		
AL2N (2nd metal)	6 weeks	
Measurements	1 week	
ACTN - 2nd Al etch (Test Adaptor remove and defect repair)	in progress	
COAN + WINP (Oxide etch top and back side)	3 weeks PXD9-10 can start	
CO3N (3rd via)		
BCBP (edge protection for backside thinning)		
CU1N (Copper)		
Final measurements (ATG)	2 months	
BCBN		
Cutting	End of October if GO comes now	



PXD9-9 can be started if PXD9-7 leaves the main clean room 2nd week in June

+ 4.5 months production time -> End of November

PXD9-10 can be started if PXD9-8 leaves the main clean room

Beginn of October if PXD9-8 would be continued now End March 2017

speed depends on whole production yield



- Yield of PXD9-7 very simlar to PXD9-6 (wafer numbers in the same range)
- Removing of test adaptor allows individuell repairing of some modules
- Production schedule

Batch	# wafer	finished by
PXD9-7	4	July
PXD9-8	9	end of October
PXD9-9	6	end of November
PXD9-10*	7	March 2017

\* Not needed for Belle2 if yield stays in the current range