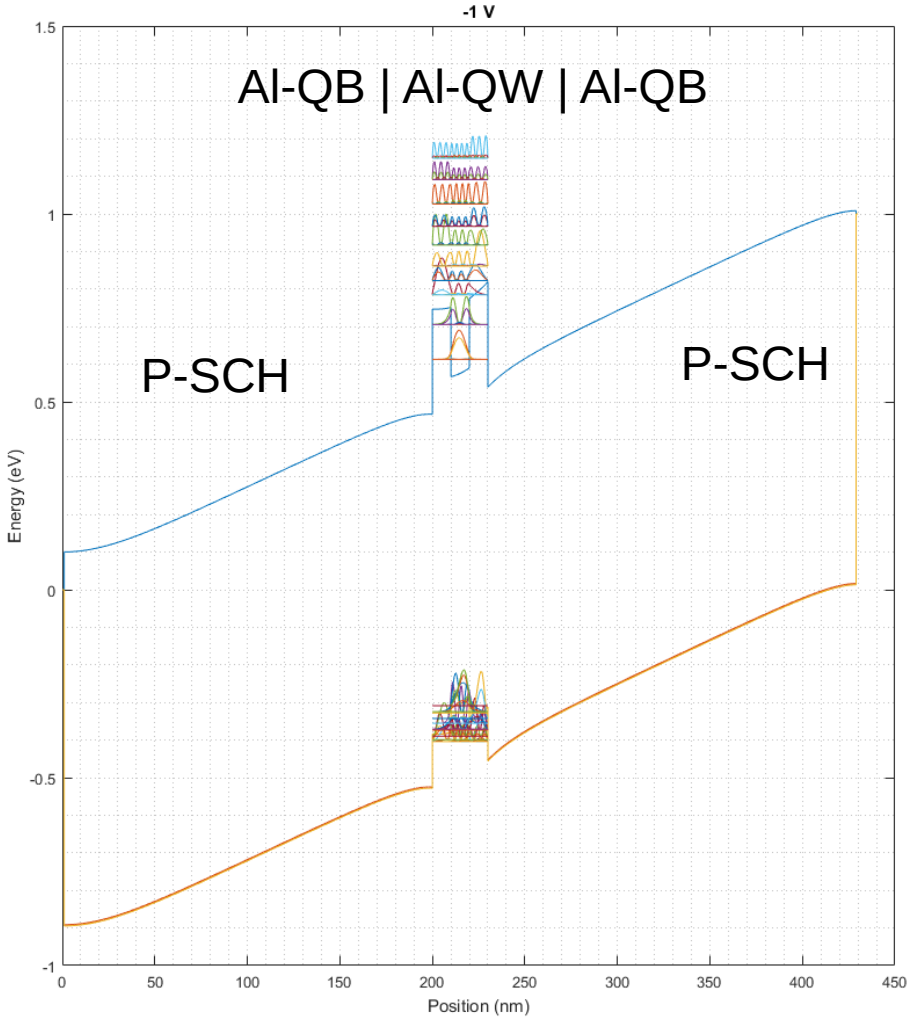
Minutes of last meeting

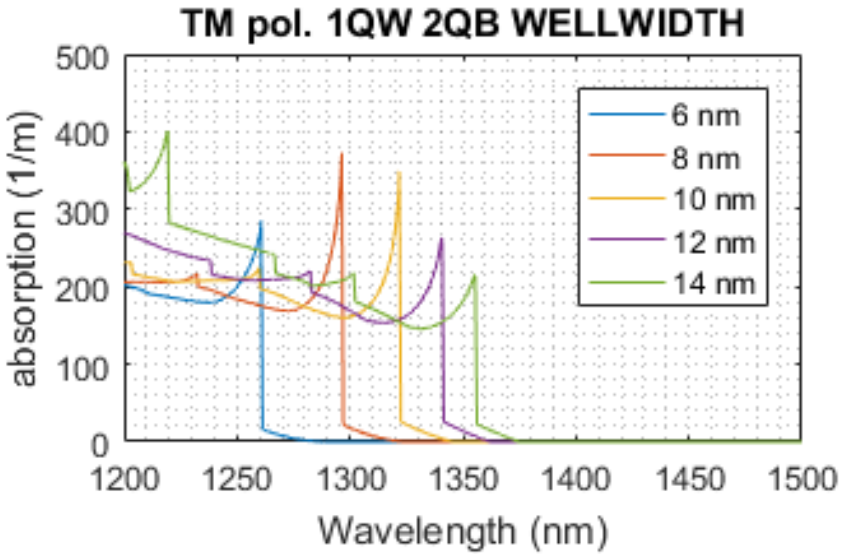
Discussion/action points

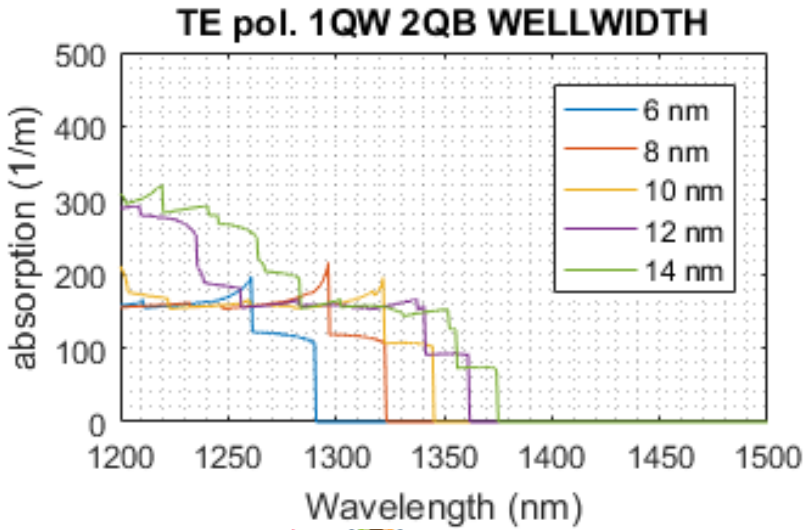
Nr.	Description	Responsible
1.	**Al-MQW Design** Simulation results on P-based MQW(4x) shown. Simulation of Al-MQWs to follow.	Weiming
2	**Zn-diffusion** Zn-diffusion experiments should be done before maintenance of reactor (planed for Nov 13).	Victor, Rene
3	**BCB update** Test: metal/BCB/SiOx/Si. 3 samples (evaporated ti-pt-au) ready for tests, 2 samples to be done (sputtering).	Victor, Tjibbe
4	**Technology objectives** Strategy of technology development has to be discussed in a one-to-one meeting (PITC-SMP) to clarify strengths and weaknesses in order to understand how we can cooperate better.	Rob, Victor

Next meeting is 13th November, 2017, 13:30

Al-MQW layerstack





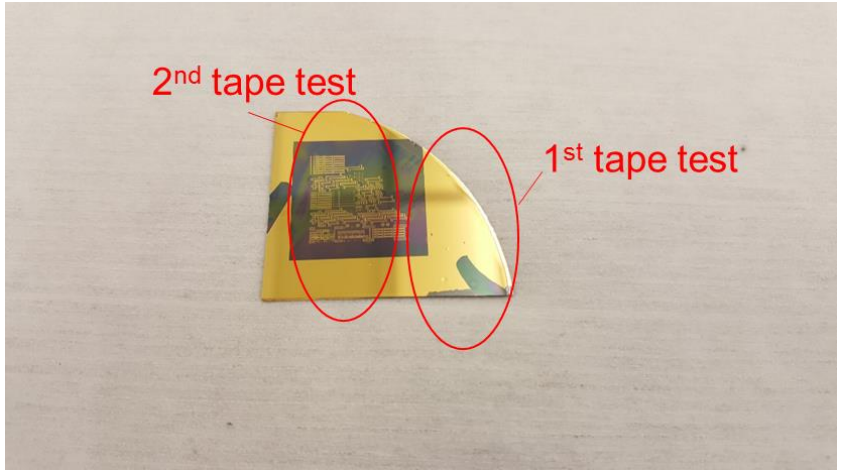


Metal/BCB

- Three samples were made to test the adhesion between metal and BCB.
  - One sample was just cured BCB
  - The second sample was etched in the polymer RIE for 4 minutes with the standard BCB etch process
  - The third sample had an ICP-PECVD oxide adhesion layer.

- Only samples with SiOx layer survived wedge bonding tests

- Next: fabrication of sampels in InP-Substrates for characterization



Ma-N 1420 process for stepper

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Processing conditions - STANDARD PROCESS

Resist		**ma-N 1405**	**ma-N 1407**	**ma-N 1410**	**ma-N 1420**
Film thickness	[µm]	0.5	0.7	1.0	2.0
Substrate preparation		Oven: 200 °C, 30 min (HMDS for Si and SiO_2 substrates)			
Spin coating	[rpm] [s]	3000 30			
Prebake					
Hotplate	[°C] [s]	100 60	100 60	100 90	100 120
Oven	[°C] [min]	100 – 105 15 – 30			
Exposure dose[1]	[mJ cm^{-2}]	300 ± 20	350 ± 30	450 ± 30	550 ± 30
Development[2] (ma-D 533/S)	[s]	20 ± 5	25 ± 5	30 ± 10	60 ± 10

[1] broadband exposure, intensity measured at λ=365 nm
[2] immersion development

Focus: -1 micron

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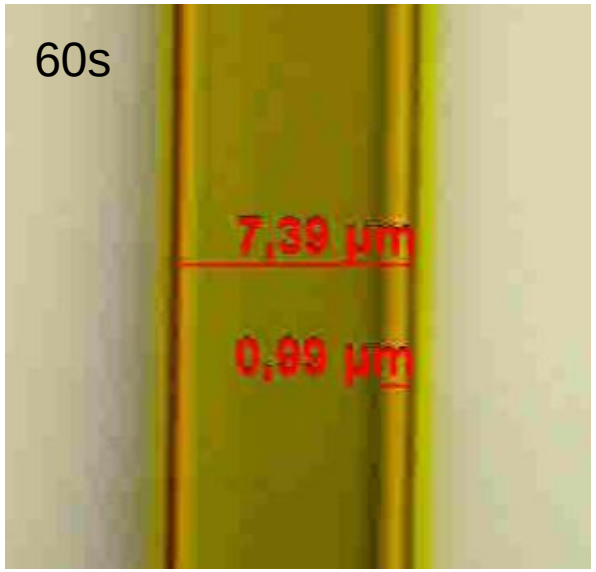
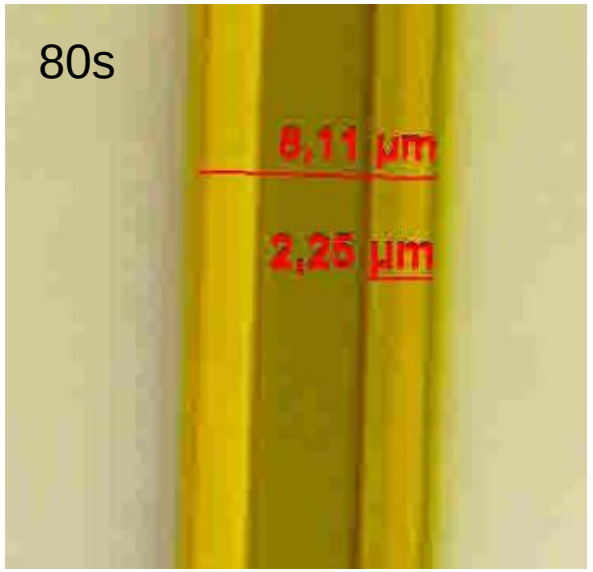
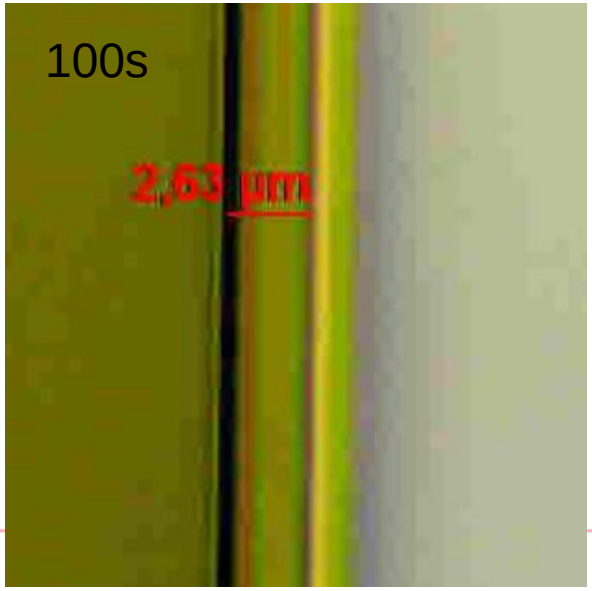
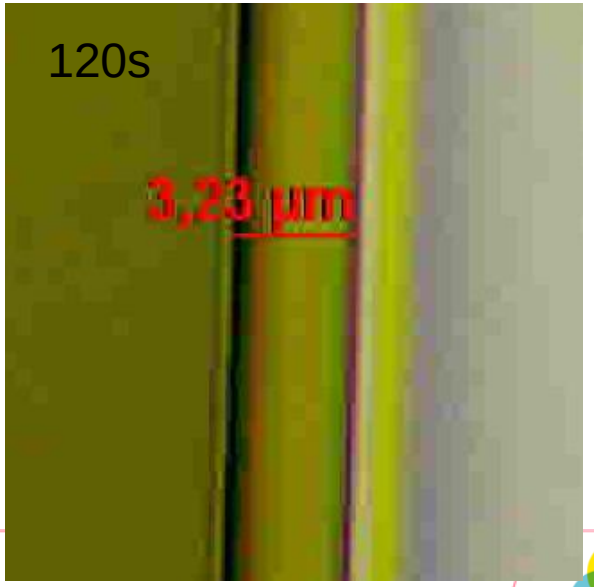
Influence overhang on tDev (optical mic.)





E = 550mJ/cm2
F = -1 micron





tDev = 60s (ma-D533/s pure)

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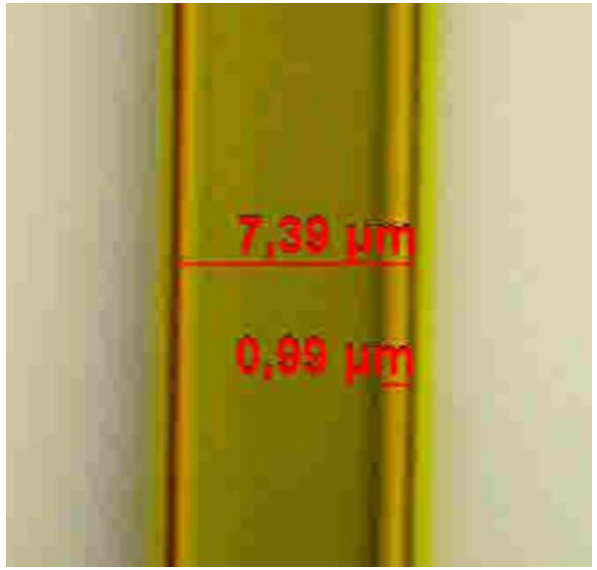
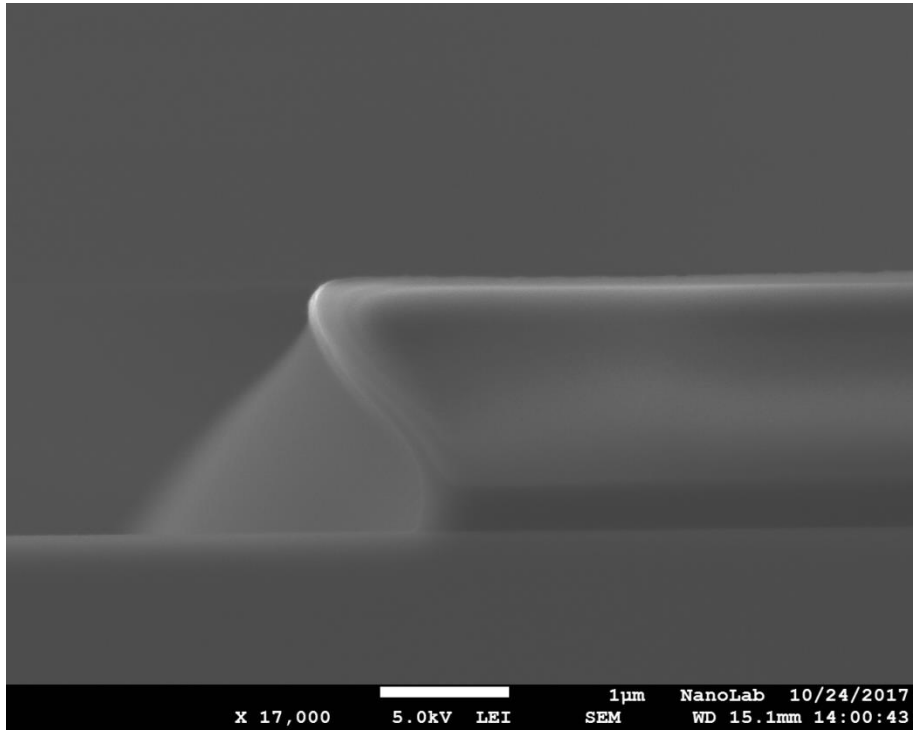


Overhang: 1.0 micron



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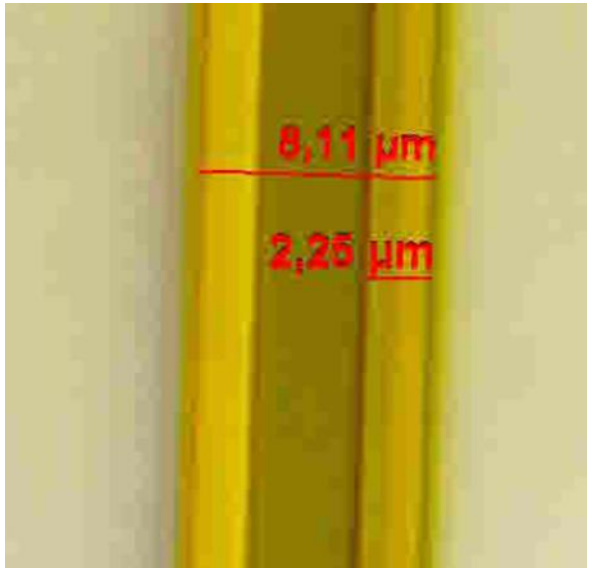
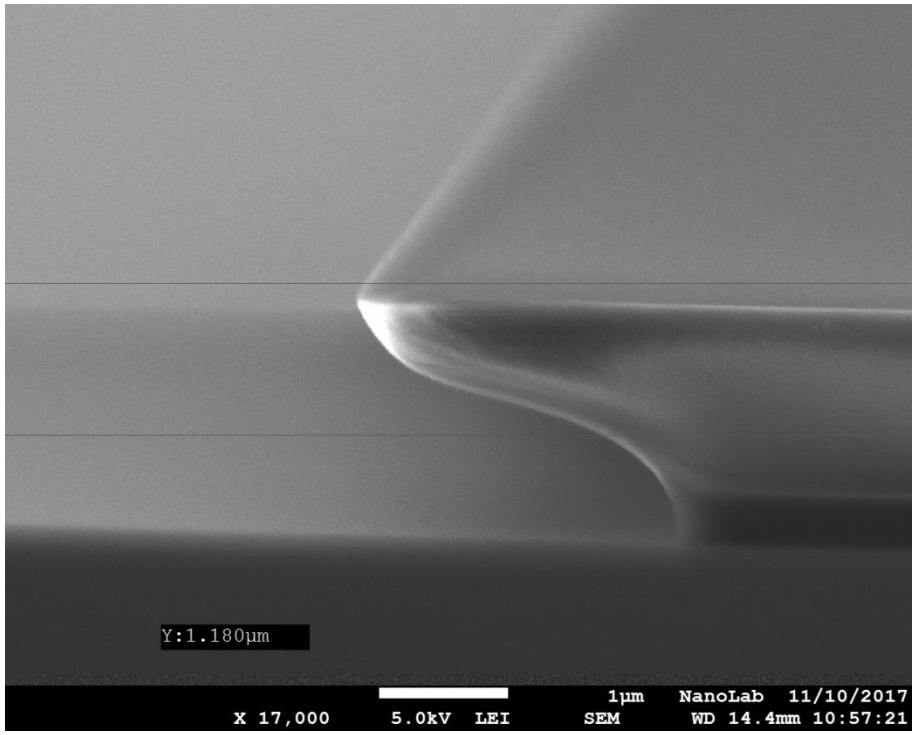
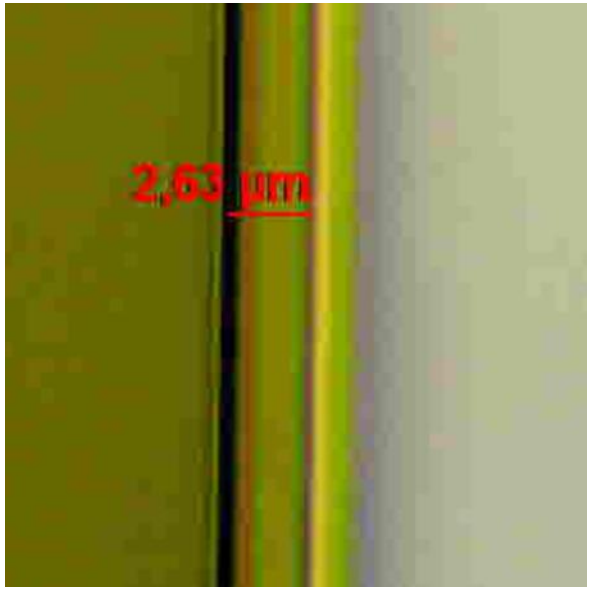
tDev = 80s (ma-D533/s pure)



Overhang: 2.2 micron



tDev = 100s (ma-D533/s pure)



Overhang: 3.7 micron