

Minutes from OpenPICs WP 4 meeting 20-02-2017

Present: Longfei, Weiming, Rui, Steven, Roel, Rob, Rene, Tjibbe, Robert

Agenda points	Responsible	Updates?
New epitaxy integration (Al-MQW, Zn diffusion)	Longfei, Rene	
Insulation and high-speed RF lines	Tjibbe, Longfei	
DUV process optimization	Roel	
CMP and Stepper process development	Robert	
MPW test structures design	Weiming, Longfei	No updates

Discussion/action points

Nr.	Description	Responsible
1.	<p>Al-MQW based BBs</p> <p>We agree that we need more quantified results from simulations or literatures to evaluate the potential improvement of Al-MQWs and to find the optimal design to start with.</p> <p>Rene will plan for installing a new Al source in the R-reactor and study the Al-MQW quality with faster flow switch and higher growth temperature. This is likely to happen in March, depending on the availability of the reactor.</p>	<p>Longfei, Weiming,</p> <p>Rene</p>
2.	<p>Zn diffusion tests</p> <p>3 layerstacks have been grown. Rene is waiting for the Smart default stack. Rui will check this with Peter. Starting conditions for the test are PH3 and 100 mbar, aiming to reproduce the diffusion done before. Influence on diffusion profile will be studied w.r.t. temperature and time.</p>	<p>Rene, Rui</p>
3.	<p>BCB planarization</p> <p>BCB 3022-57 gave the right thickness we need for a low-loss RF line. Tjibbe will do adhesion tests using a metallization mask from previous MPW. Starting with tape test for metal lines directly on BCB, followed by wire-bonding on pads.</p> <p>From design perspective (low RF loss), a second BCB layer to 'hold' the pads is a preferred solution. Roel suggests we should also look into Philips facility using Ar plasma before the metal sputtering.</p> <p>Uniformity needs to be checked with BCB on a processed sample. Roel will keep eye on such samples from Smart.</p>	<p>Tjibbe, Roel</p>
4.	<p>Stepper and CMP tool</p> <p>We need to design CDSEM test structures for stepper to measure the resolution (CDV), overlay accuracy etc.</p> <p>We still do not have explicit design requirement on using CMP. Robert is currently working on polishing the AP ears, which may be useful for DUV. A challenge lies on the critical control of contamination and depth during the CMP process. In addition, Roel will look into other planarization scheme to replace polyimide process, which may also involve CMP. This is unclear at the moment.</p>	<p>Robert, Longfei</p>
5.	<p>Etching process improvement</p>	<p>Longfei</p>

	Development for a new etching recipe is raised up in the discussion. Longfei will start with literature study and discussions with researchers in the group. Requirements: improved verticality, Al-compatible, etch depth control.	
--	--	--

Next meeting: 13:30-15:00, 6-03-2017, Flux 10.177