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| Objective |
| Batch name: Process template |
| This process is a guideline on how to spin, e-beam expose develop and rinse mr EBL 6000 on substrates as Si, SiO2 and SOI.  Mr EBL 6000 is a chemically amplified negative e-beam resist. The resist has been approved to carry into DTU Danchip cleanroom, but this flow has not been tested or optimized. |

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| Step Heading | Equipment |  | Comments |
| 1. Pretreatment | | |  |
| * 1. Surface treatment | Hotplate | Bake-out 5min @ 200 degC |  |
| 1. Spin coat of CSAR | | |  |
| * 1. Coat wafers | Manual Spinner 1, or Spin coater LabSpin | **Resist:** mr EBL 6000.1  **Spin:** 60 sec @ 3000 rpm (for appr. 90 nm)  **Softbake:** 3 min @ 110 oC  Thickness 100 – 70 nm for spin coat speeds of 2000 – 6000 rpm (LabSpin A-5). | Use syringe with filter or disposable pipette (cleaned by N2 gun).  Keep coated wafers in yellow environments.  Unexposed film has Cauchy coefficients of n0=1570, n1=104.8, n2=0 |
| 1. E-beam exposure | | |  |
| * 1. E-beam exposure | E-beam writer | Dose: 10 - 50 µC/cm2; a dose-test is required. See e-beam logbook for inspiration. | Dose depends strongly on substrate material, thickness of resist, critical dimension and load of pattern. |
| 1. Post exposure Bake | | |  |
| * 1. Post Exposure Bake | Hotplate | **bake:** 5 min @ 110 oC  Bake immediately after e-beam exposure. | Exposed and PE-baked film has Cauchy coefficients of n0=1570, n1=104.9, n2=0 |
| 1. Develop | | |  |
| * 1. Develop | E-beam Fumehood | **Developer:** Mr-Dev 600, 20-25 oC.  **Rinse:** IPA  **Dry:** N2 gun |  |
| 1. Hardbake (optional) | | |  |
| * 1. Hardbake | Hotplate | **bake:** 5 - 15 min @ 100 - 140 oC | Increases thermal stability |
| 1. Lift-off and Strip | | |  |
| * 1. Lift-off | E-beam  Fumehood | Mr-Rem 660 (NMP based) or  Mr-Rem 500 (NMP free)  Can be done at temperatures of 40 – 60 oC assisted by ultrasonics. Oxygen plasma also suitable. |  |