

# 2021-02-23 Detector Planning Meeting notes

## Attendees

- [McKelvey, Mark E](#)
- [Philip Hart](#)
- [Kazutaka Nakahara](#)
- Rebecca Armenta
- Conny Hansson
- Bhavna Nayak
- Chris Koerber

## Goals

- Set and status planning activities for detector development and deployment.

## Discussion items

Time	Item	Who	Notes
10 min	Beamtime support update		<ul style="list-style-type: none"><li>• Kayla still running Mondays for now, but no more T/Th.</li><li>• Detector readiness:<ul style="list-style-type: none"><li>◦ 2m.1 back at MFX (cal issues?)</li><li>◦ Quads back at MEC (Same cal issues?)</li><li>◦ Return ePix100#7 for repair?</li><li>◦ Receive/test ePix100 spares and side-look 1mm ePix10k</li><li>◦ Baseline JF and 2M 'traveller' pages on <a href="#">Confluence</a>.<ul style="list-style-type: none"><li>▪ Collect and analyze any remaining in-lab test data.</li></ul></li></ul></li></ul>

30 min	Priorities Review	All	<ul style="list-style-type: none"> <li>• <b>2021 events:</b> <ul style="list-style-type: none"> <li>◦ <b>Projects new starts:</b> <ul style="list-style-type: none"> <li>▪ VFCCD/ePixM downselect implementation of REXS for 2.2 - April 28</li> <li>▪ SparkPix-S Phase II (full-size ASIC for sparsification, Tixel-based) <b>Has passed PEC</b></li> <li>▪ ePixHR IV: <b>Prototype detector</b></li> <li>▪ TXI Detectors (2Mp and 140kp based on ePixHR @5kHz) <b>CDR Closed out.</b></li> <li>▪ ePixUHR (130nm TSV structure to reach 100kHz)</li> </ul> </li> <li>◦ <b>Production:</b> <ul style="list-style-type: none"> <li>▪ <b>spare modules</b> (0.5 &amp; 1mm) Module order in work, new sensor order out</li> <li>▪ <b>Proposed 3d copy of ePix10k2m (pending)</b></li> <li>▪ <b>Proposed spare quads for MEC (2)</b></li> <li>▪ <b>Proposed in-vac ePix10k2m for CXI</b></li> <li>▪ <b>Proposed ePix10k4m</b></li> <li>▪ <b>Proposed UED detector upgrade</b> (2kHz, 125um sensor)</li> </ul> </li> <li>◦ RIXS-CCD/cooler test and verification (<b>shipped archon and cooler to STA</b>)</li> <li>◦ HiZ collaboration tests.</li> <li>◦ Outreach for R&amp;D support (SparkPix-ED, SparkPix Delta).</li> <li>◦ Support effort for LCLS-II-HE instruments (performance verification/implementation planning)</li> <li>◦ SBIR effort for UXL.</li> </ul> </li> <li>• <b>Group priorities review:</b> <ul style="list-style-type: none"> <li>◦ <b>Testing</b> <ul style="list-style-type: none"> <li>▪ Setup ePix10k, ePix100, JF smalls for test in lab</li> <li>▪ Review with TID the stitching progress, look for improvements (meeting 2/23)</li> <li>▪ Can we figure out what's wrong with ePix100/7?</li> <li>▪ RIXS-CCD cooler test/ship plan</li> </ul> </li> <li>◦ <b>Analysis</b> <ul style="list-style-type: none"> <li>▪ <b>Gather and process relevant commissioning data for Mp travellers on <a href="#">Confluence</a>.</b> <ul style="list-style-type: none"> <li>◦ Solid pedestals</li> <li>◦ Noise map</li> <li>◦ Response uniformity (mini-X cu-fluorescence)</li> <li>◦ Bootstrap gain (sealed source)</li> <li>◦ Linearity (signal injection)</li> </ul> </li> </ul> </li> <li>◦ <b>Documentation</b> <ul style="list-style-type: none"> <li>▪ <b>Complete on-line travellers for Mp detectors</b></li> </ul> </li> <li>◦ <b>Development</b> <ul style="list-style-type: none"> <li>▪ RIXS-CCD, review engineering note with w/NEH 2.2</li> <li>▪ SXR Downselect prep. May 1?</li> </ul> </li> <li>◦ <b>Lab 'commissioning'</b> <ul style="list-style-type: none"> <li>▪ <b>DAQ</b> <ul style="list-style-type: none"> <li>• Storage nodes (ordered)</li> <li>• LCLS I/II compatibility</li> </ul> </li> <li>▪ BIO for racks in chase (Chris to take over hounding)</li> </ul> </li> </ul> </li> </ul> <p><b>Actions:</b></p>
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30 min	Status	<p>Storage nodes/servers plus user computer upgrade on order</p> <p>Si sensor order out through TID for next 10k production.</p> <p>Anton has MCPs, expects first tests with Timepix this week.</p> <p>TID tech mtg this afternoon. Will send reminder with topic (cal/switching, TXI QE, thermal, Ge test setup, CO2 cooler infrastructure??)</p> <p>Cal status summary pls,</p> <p>CH:</p> <ul style="list-style-type: none"> <li>• Ran Quad 1 at different biases. Working analysis.</li> <li>• Pedestal scripts not working since last last update. Need Silke's help. Permissions issue?</li> <li>• Need function to pull spectrum (histogram) for each pixel.</li> <li>• MPOD messes up above 200V, goes higher than programmed.</li> </ul> <p><del>RA:</del></p> <ul style="list-style-type: none"> <li>• Meet re cooling concepts...met with Jim re outside space: not much.</li> </ul> <p>KP: JSA summary list circulated</p> <ul style="list-style-type: none"> <li>• XPP/MFX/XCS fibers due this week, other wise need ugly solution.</li> <li>• Small Rayonix testing can be done by others.</li> <li>• XPP/XCS power cable pinout (controls needs to tell us MPOD working)</li> </ul> <p>KN:</p> <ul style="list-style-type: none"> <li>• Spare JF Power supply received.</li> <li>• Seb looking for low-intensity diode.</li> <li>• UED MPOD?</li> <li>• Rayonix pressure issue manifold replaced, refilled, monitoring.</li> </ul> <p>PH:</p> <ul style="list-style-type: none"> <li>• MEC ran quads this weekend, fixed med was saturating.</li> <li>• MFX 10k calibration with hockey stick has been refined slightly..2% of pixels have noisy first switch, need more uptime to test.</li> <li>• Circular connectors tough to release...special tool?</li> <li>• UXI IoC update, need help from Dan to run in the lab.</li> </ul> <p><del>BN:</del></p> <ul style="list-style-type: none"> <li>• Made updates to detector website, in work.</li> <li>• working with PH on porting PyRoot to Python.</li> </ul> <p>KN</p> <ul style="list-style-type: none"> <li>• UED guys are set with new cables</li> <li>• ePix UED temp 63C</li> <li>• Sunday MFX finishes, 2M comes off, box delivered to MFX today.</li> <li>• XPP having trouble with pgp server hat runs 2M.</li> <li>• CXI fiber 450uW becomes 50-60uW, defect in port feedthrough sometime limits to 2uW(?), replacement flanges on order (8-9 weeks).</li> </ul> <p>CH</p> <ul style="list-style-type: none"> <li>• 2m.0 last Friday looked good, charge-punch has recovered.</li> <li>• Measurements on sm 10k, pedestal application inconsistent in online ami, raw data is fine.</li> <li>• Still see dashed lines in pedestal config.</li> </ul> <p><del>KP</del></p> <ul style="list-style-type: none"> <li>• RMA for MPODs</li> <li>• Lab cleaning tonight.</li> </ul>
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5 min	Budget Update	mmck	<div><div><div>M&amp;S Status (Through December)</div><table><thead><tr><th colspan="3"></th><th colspan="2">Values</th><th rowspan="2">Remaining Balance</th></tr><tr><th>PA Proj_Act</th><th>PA Activity_Desc</th><th>LSTM Desc</th><th>KCST BA 1.0</th><th>ACTUALS</th></tr></thead><tbody><tr><td>10918-A4001</td><td>DET Dist Exp Support</td><td>M&amp;S</td><td></td><td>\$0</td><td>(\$0)</td></tr><tr><td>16152-A4001</td><td>ePix Support</td><td>M&amp;S</td><td>\$61</td><td></td><td>\$61</td></tr><tr><td>16158-A4001</td><td>Other Detector Support</td><td>M&amp;S</td><td>\$12</td><td>\$0</td><td>\$12</td></tr><tr><td>16253-A4001</td><td>C-S PAD Support</td><td>M&amp;S</td><td>\$6</td><td></td><td>\$6</td></tr><tr><td>18303-A4001</td><td>Jungfrau Support</td><td>M&amp;S</td><td>\$12</td><td></td><td>\$12</td></tr><tr><td>16287-A4001</td><td>DET Department Management</td><td>M&amp;S</td><td>\$4</td><td>\$4</td><td>\$0</td></tr><tr><td>16826-A4001</td><td>DET Department Research</td><td>M&amp;S</td><td>\$58</td><td>\$9</td><td>\$49</td></tr><tr><td>16159-A4001</td><td>DET Dept Infrastruct &amp; 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