

NMX Project Plan



EUROPEAN
SPALLATION
SOURCE

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Scientific Project
Leader

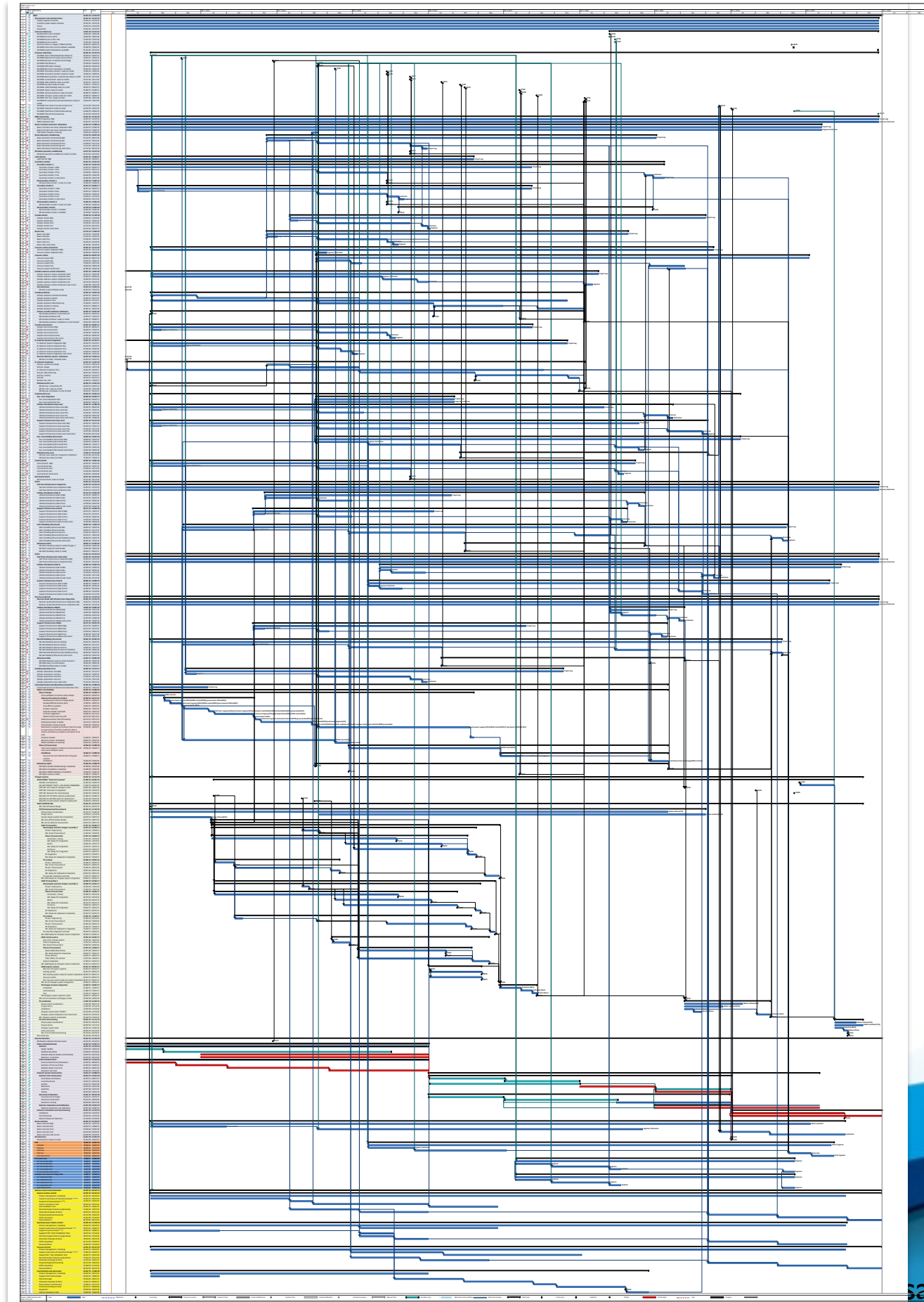
**Giuseppe
Aprigliano**
Lead Instrument
Engineer

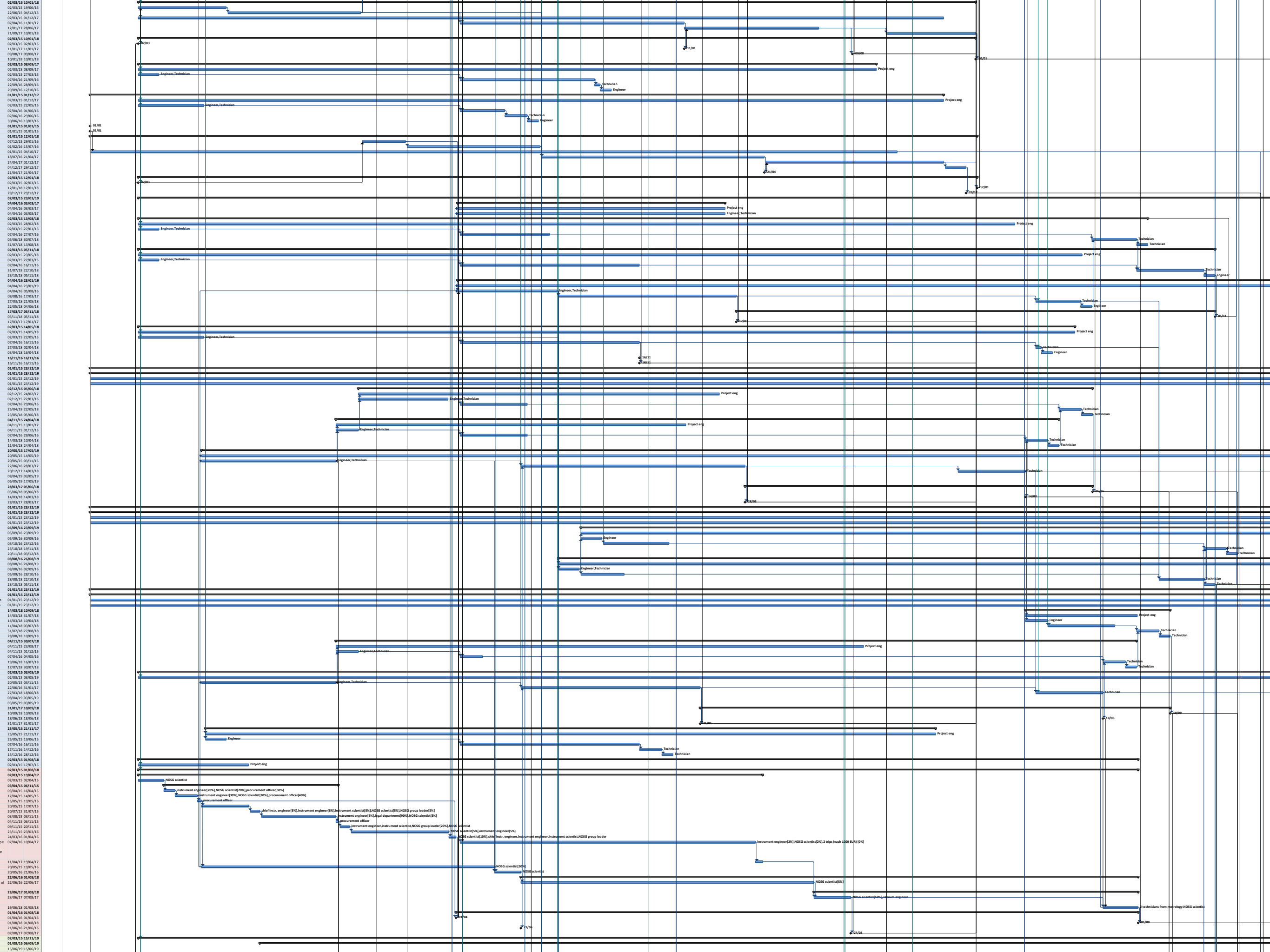
NMX Tollgate 2 Review
2014-12-11

Outline

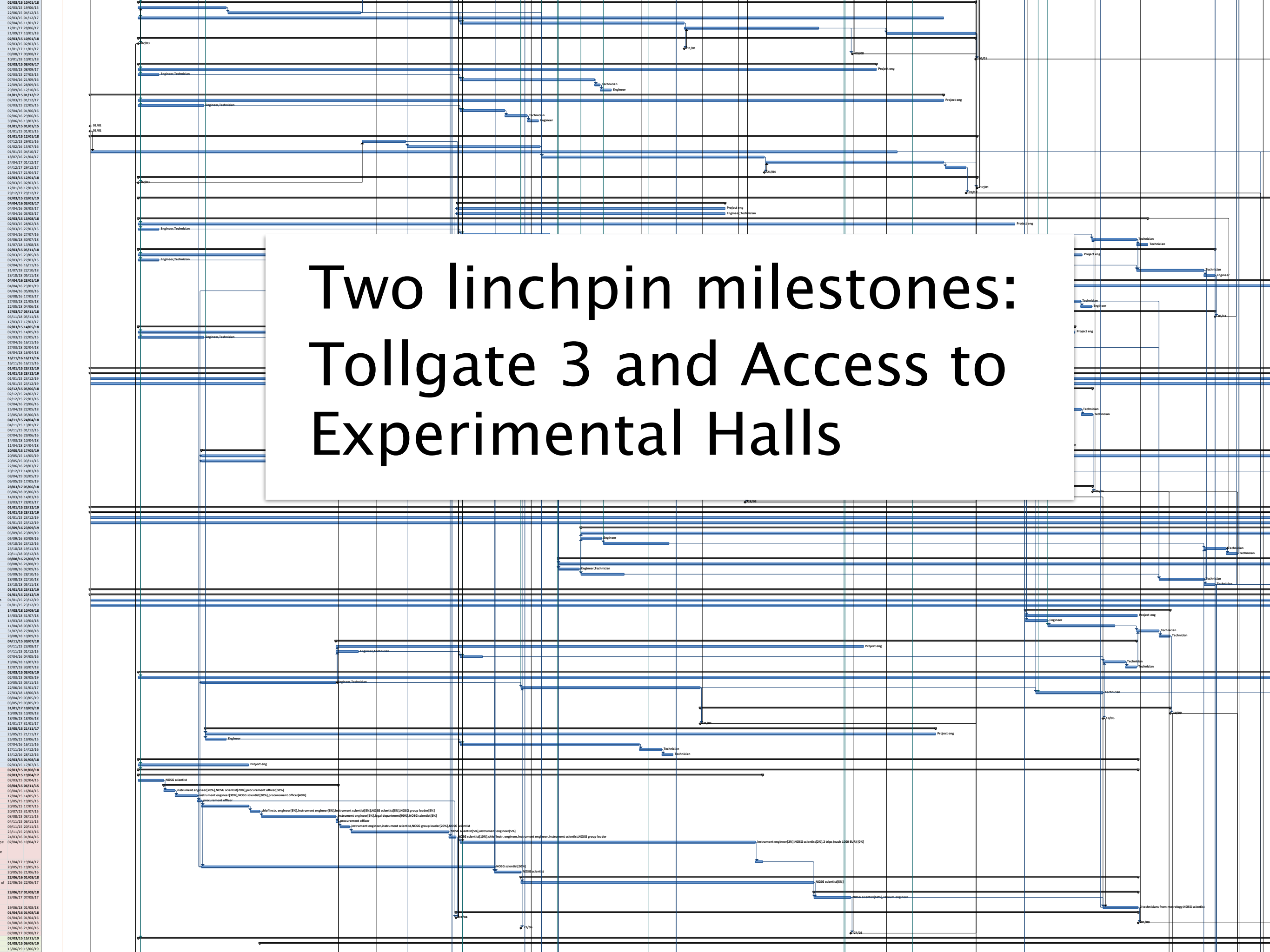
- EO** • **Overview**
- EO** • Design connections
- GA** • Design timelines
- GA** • Procurement estimates
- GA** • Installation estimates
- GA** • Cold Commissioning estimates

Plan overview





Two linchpin milestones: Tollgate 3 and Access to Experimental Halls



Plan overview – Phase 2

- Design (Phase 2) builds up to TG3 (projected Dec 2016)
- Early procurement needed for optics (design–build contract) and choppers (strategic procurement of spindles)
- Shielding mechanical design tightly coupled to neutronics calculations
- Detector technology decision needed before freezing end station design – projected TG3 coincides with detector decision point

Plan overview – Phase 3

- Access to Experimental Halls (Mar 2018) is critical; installation schedule is tight (but manageable)
- All components (except detectors) could be delivered > 4 months in advance (Aug–Sep 2017)
- Earlier access (building roofs are scheduled Aug–Nov 2017) could be exploited
- Installation will be planned in detail later

Plan overview – Phase 4 (Cold Commissioning)

- Prerequisites for TG4 still somewhat unclear
- Cold commissioning activities will likely overlap with installation

Plan overview – Critical path

- Critical path is detectors – delays have limited repercussions in the rest of the project
- > 6 month delays in shielding design/procurement bring it to the critical path

Plan overview – Milestones

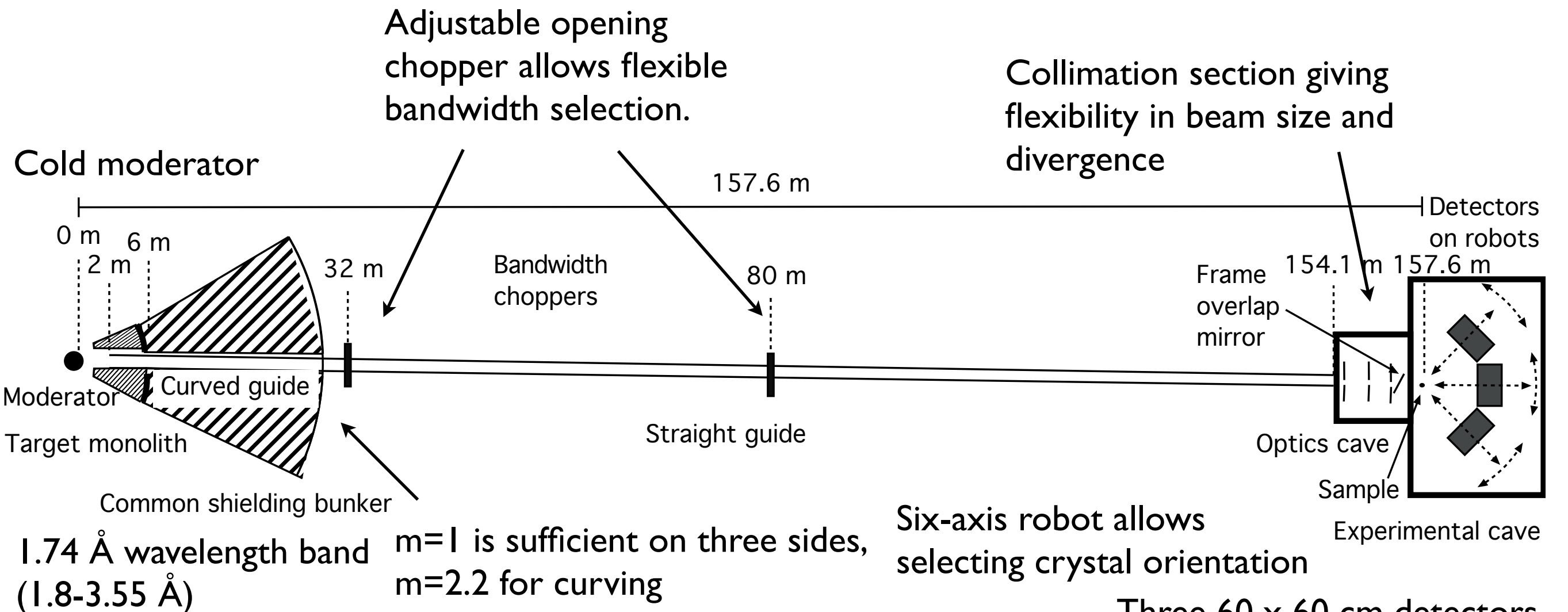
Progress milestones	
Milestone	Projected date
MS NMX Start of Detailed Design (Phase 2)	02/03/2015
MS NMX Readiness for optics procurement	14/05/2015
MS NMX DMSC Requirements collection completed	31/07/2015
MS NMX Decision on detector technology	22/12/2016
MS NMX TG3 (Phase 3)	23/12/2016
MS NMX Critical Design Review Optics chopper	06/04/2016
MS NMX Neutronics calculations complete	19/05/2016
MS NMX Secondary shutter 1 ready to install	08/06/2017
MS NMX Secondary shutter 2 ready to install	08/06/2017
MS NMX Beam geometry conditioning ready to install	03/08/2017
MS NMX Control Hutch ready to Install	03/08/2017
MS NMX Neutron Guide Hall shielding ready to Install	03/08/2017
MS NMX Experimental Cave ready for Installation	03/08/2017
MS NMX Hall2 Shielding ready to install	28/09/2017
MS NMX Optics ready to install	07/08/2017
MS NMX Sample positioner ready to install	26/04/2018
MS NMX Chopper system ready for install	03/05/2018
MS NMX Detector Positioner ready to install	21/06/2018
MS NMX All components (except detectors) ready to Install	12/01/2018
MS NMX Cave ready to accept components	03/12/2018
MS NMX Detectors ready to install	01/01/2019
MS NMX TG4 Phase 4 Cold Commissioning	03/06/2019
MS NMX TG5 Hot Commissioning	23/12/2019

External milestones	
Milestone	Projected date
MS NMX ES&H Safety regulations available	31/07/2015
MS Monolith insert installed	14/03/2018
MS NMX Access to Hall 2	14/03/2018
MS NMX Access to Neutron Guide Hall	27/03/2018
MS NMX Access to Hall 3	27/03/2018
MS First Proton on Target, 570MeV (ACCS)	28/05/2019
MS NMX Instrument control software available	01/06/2019
MS NMX Support laboratories available	22/12/2019

Outline

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- EO • **Design connections**
- GA • Design timelines
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- GA • Cold Commissioning estimates

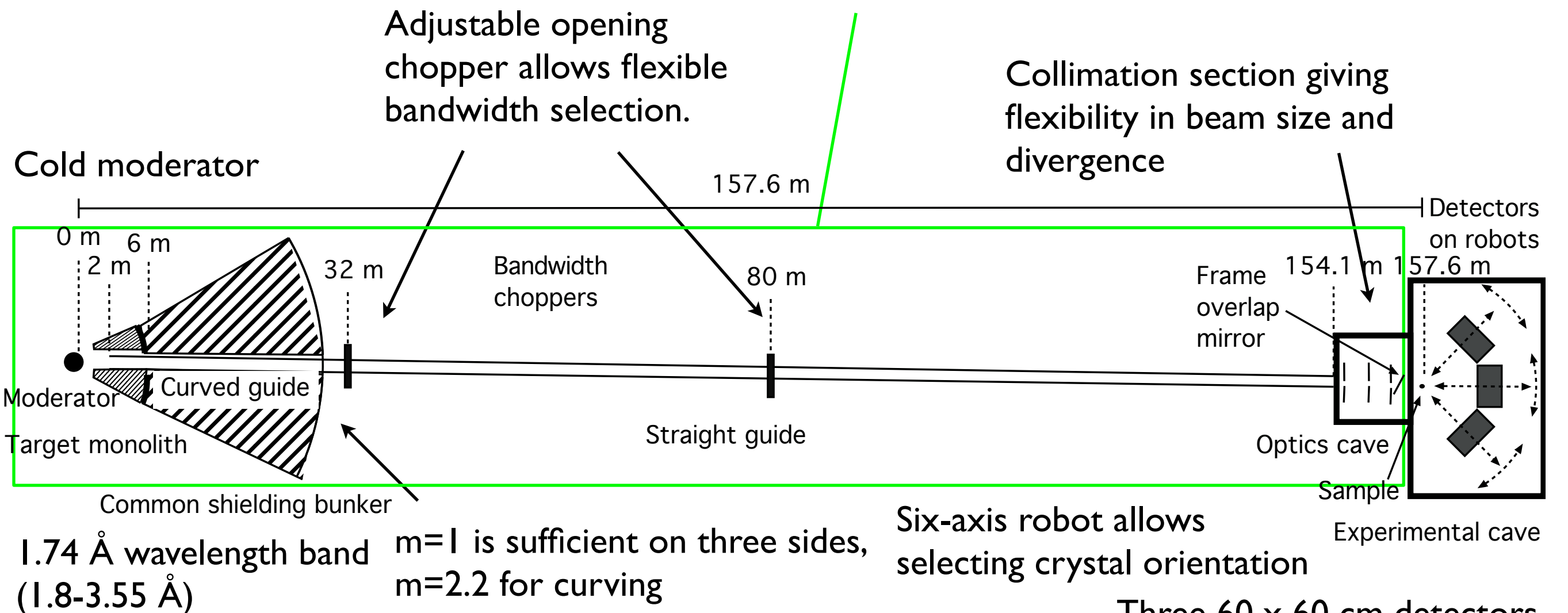
NMX – A quasi-Laue time-of-flight diffractometer with high q -resolution



- Match beam size to sample size (max 5 x 5 mm)
- Match beam divergence to sample mosaicity (max. $\pm 0.2^\circ$)
- Maximize (useful) flux at sample!

NMX – A quasi-Laue time-of-flight diffractometer with high q -resolution

Existing technology

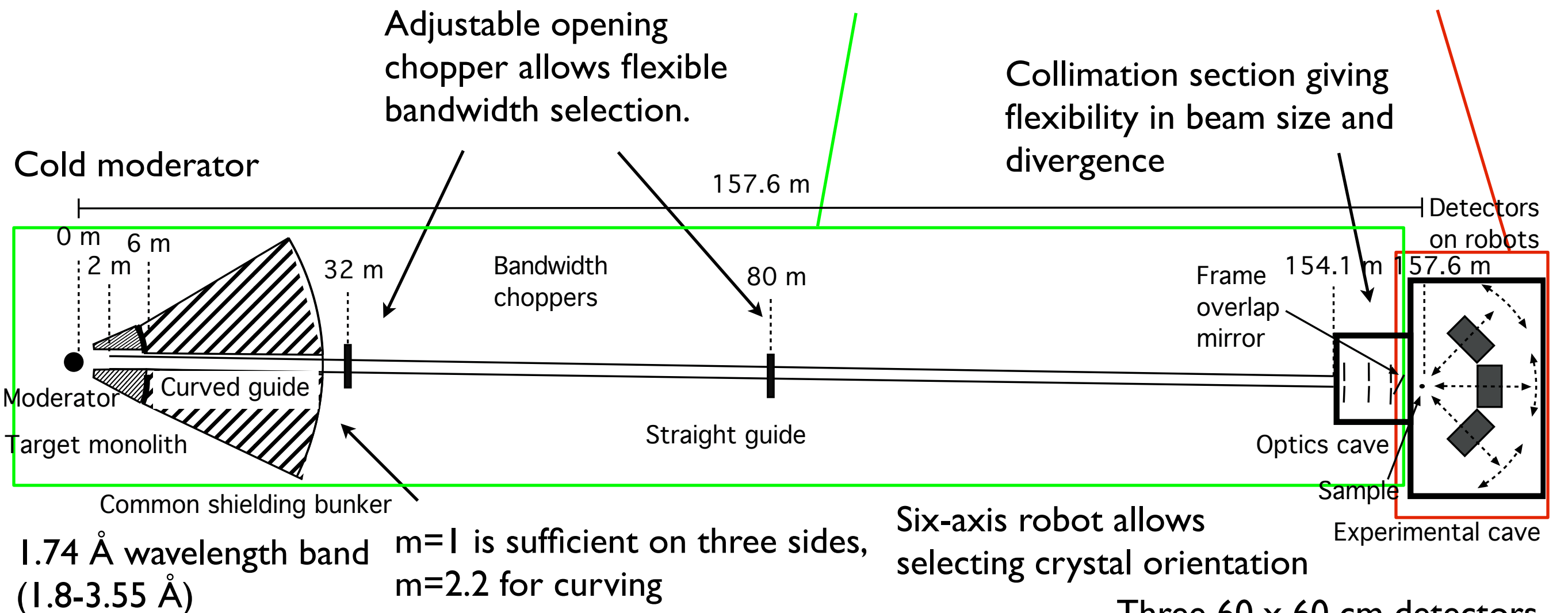


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NMX – A quasi-Laue time-of-flight diffractometer with high q -resolution

Existing technology

Needs R&D



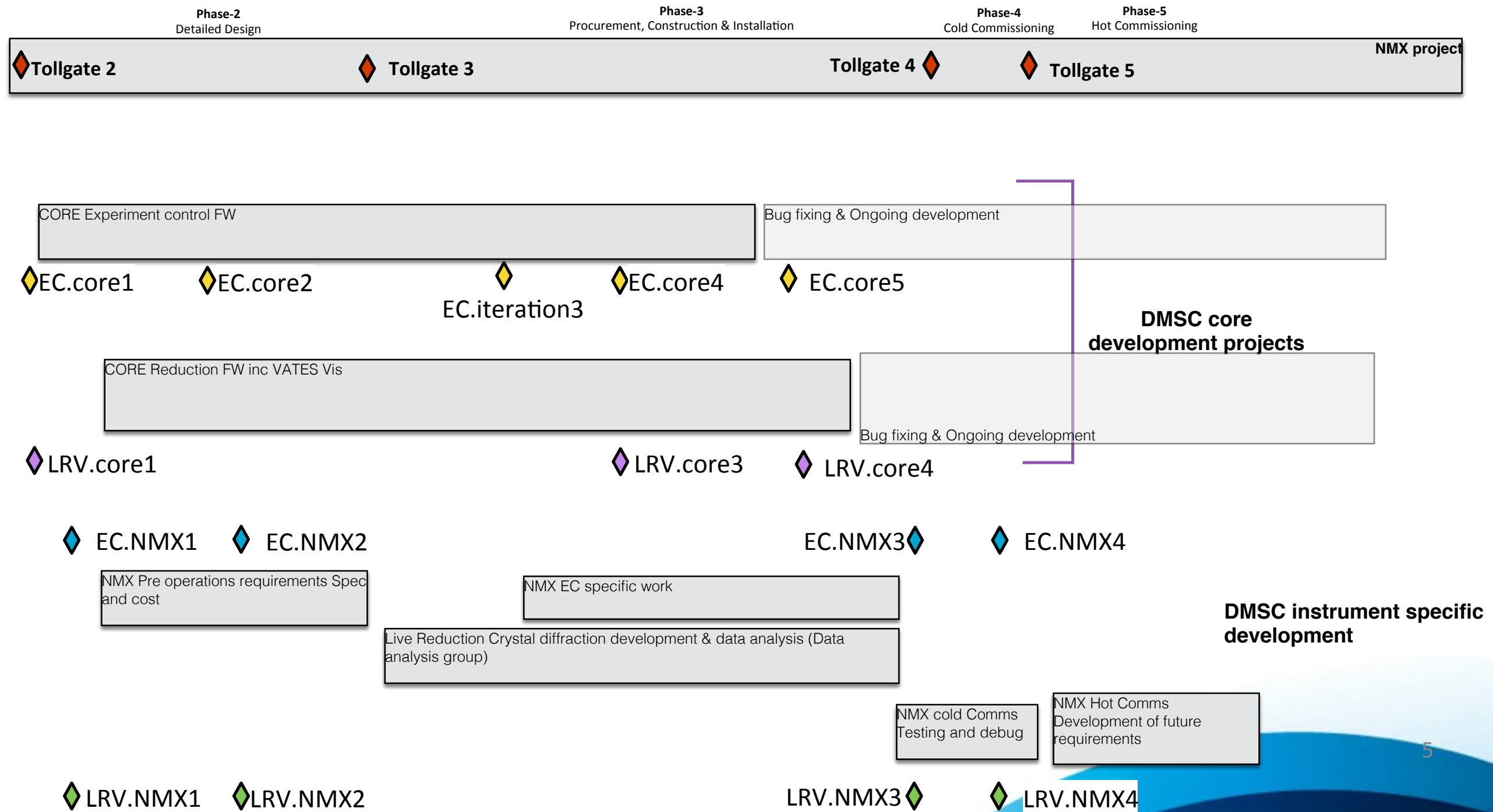
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Connections to detector development

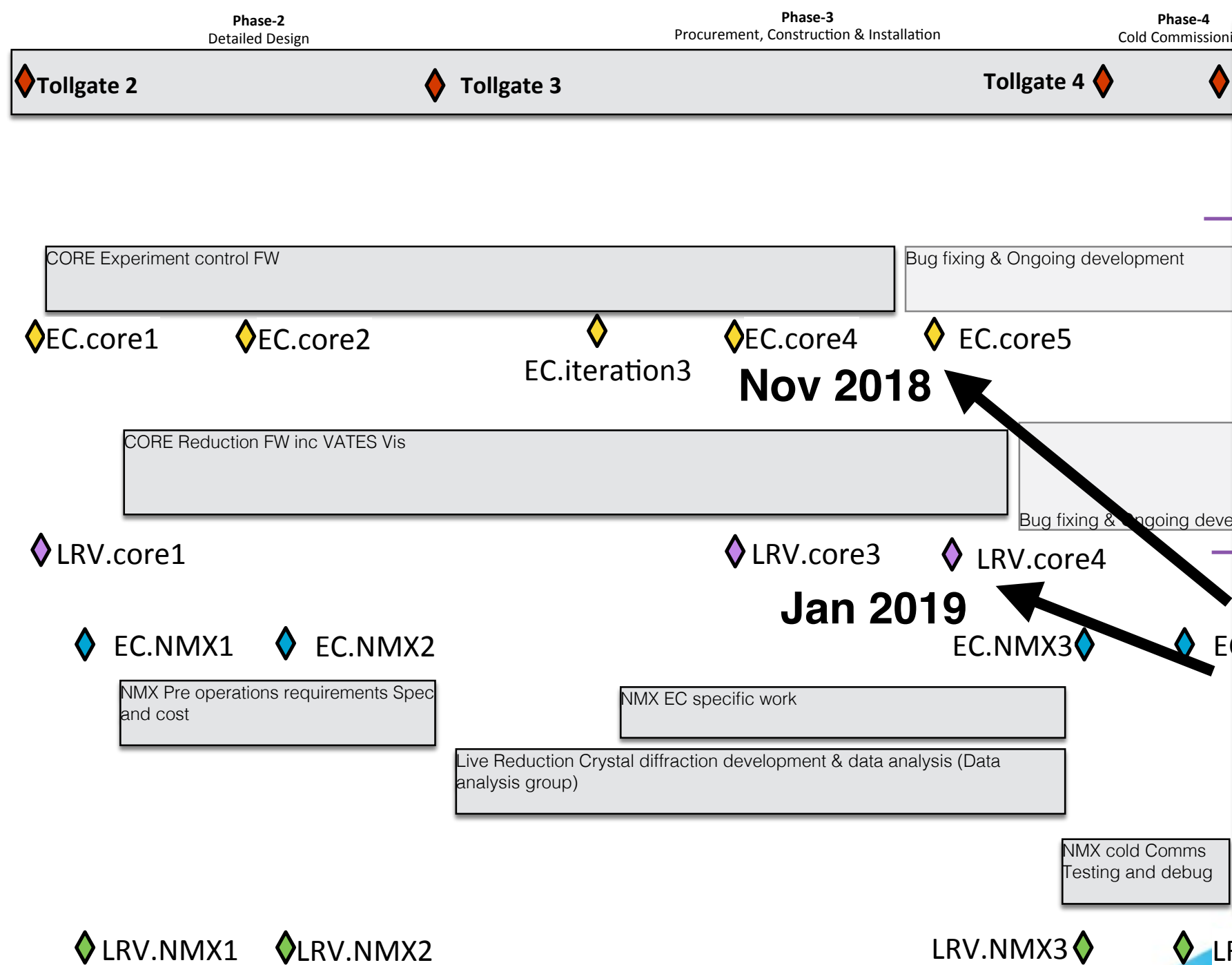
- Detector technology decision is the key connection
- Coincides with projected TG3 (Dec 2016)
- Detector group work in Phase 1 & 2 closely coupled to R&D



Connections to software development



Connections to software development



- Control software needed for cold commissioning
- Data processing needed in hot commissioning
- 12 months contingency between DMSC milestone and NMX milestone

Questions?