

X-IFU

The Athena X-ray Integral Field Unit



X-IFU consortium meeting #4

Location: Hosted by SRON

23 mai 2016 14:00 to 25 mai 2016 18:00

Splinter meetings Day 1: 23/05/2016, (14:00 – 18:00)

Location: SRON, Sorbonnelaan 2 3584 CA Utrecht

The splinter meetings will be at SRON on the first day. The X-IFU consortium meeting starts formally at 2 pm. One splinter led by Brian Jackson will start Monday morning. A synthesis will be presented during the detection chain splinter.

>	<u>09:00</u>	-	14:00	DM sensor + readout design	Brian Jackson	[300']
	<u>Agenda of the DM sensor + readout design (Brian Jackson).</u> <ul style="list-style-type: none">· DM FPA requirements, goals, and top-level configuration (Brian)· DM sensor requirements and (expected) characteristics (Steve)· DM readout system: requirements, design rules, and design concept (Jan)· Cross-talk simulations and SQUID linearity requirements (Roland)· SQUID chain requirements, concept, and power dissipation (Jan / Mikko)· LC filter requirements + LC filter performance at 50 and 300 mK (Jan)· Sensor-to-LC interconnects and impedance transformers (Jan)· Any other business + conclusions (Brian + discussion)					
	<u>09:00</u>	-	14:00	<300 minutes>		
>	<u>14:00</u>	-	16:00	X-IFU Science Advisory Team	Xavier Barcons	[120']
	<u>Agenda of the XSAT meeting (Xavier Barcons):</u> <ol style="list-style-type: none">1. Welcome and news [Xavier Barcons, 10']					

2. Report from MCR data package preparation on science aspects [François Pajot, 20']
3. Straylight [Etienne Pointecouteau, 5']
4. Background reproducibility requirements [Etienne Pointecouteau, 15']
5. X-ray filters [Stéphane Paltani, 10']
6. Observations of bright sources [José Miguel Torrejón, 25']
7. Update on WHIM filament data challenge [Thorsten Brand, 20']
8. Any other business

>	<u>14:00</u>	-	16:00	<120 minutes>		
---	--------------	---	-------	---------------	--	--

>	<u>14:00</u>	-	16:00	TRL map analysis	Michel Le Du	[120']
---	--------------	---	-------	------------------	--------------	--------

Agenda of the TRL splinter meeting (Michel Le Du et Gilles Hervet)

Introduction

TRL 5 for mission adoption in 2020

TRL evaluation process

 Status on the current TRL evaluation

 Proposition of TRL assessment with questionnaire

 TRA (technology readiness Assessment) : How this activity needs to be conducted

What is the Technology to be assessed within this process

>	<u>14:00</u>	-	16:00	<120 minutes>		
---	--------------	---	-------	---------------	--	--

>	<u>14:00</u>	-	18:00	Detection chain	Françoise Douchin, Hervé Geoffray, Brian Jackson, Jean-Michel Mesnager & François Pajot	[240']
---	--------------	---	-------	-----------------	--	--------

Agenda of the Detection Chain splinter (Françoise Douchin, Hervé Geoffray, Brian Jackson, Jean-Michel Mesnager & François Pajot)

- 14:00-14:20 (20') Introduction by splinter leaders (Brian – Françoise/Hervé – Jean-Michel)

- 14:20-14:50 (30') **Cross-talk simulations and SQUID linearity requirements***/Detection chain key detailed features/ Update of the energy resolution budget: open points, need for consolidation of hypothesis... (Roland)

Discussion (20') 14:50-15:10

- 15:10-15:25 (15') System impact of pixel array configuration (Simon)

Discussion (15') 15:25-15:40

- 15:40-16:10 (30') **SQUID chain requirements, concept, and power dissipation*/ LC filter requirements + LC filter performance at 50 and 300 mK*/Sensor-to-LC interconnects and impedance transformers** (Jan/Mikko)

Discussion (20') 16:10 -16:30

<ul style="list-style-type: none"> · 16:30-16:45 (15') DAC Feasibility (Laurent) Discussion (15') 16:45-17:00 · 17:00-17:15 (15') Overview of calibrations Feedback from Hitomi (ground, in flight, what needs to be calibrated, how, how often, contamination aspects ...) (Caroline) Discussion (15') 17:15-17:30 · 17:30-18:00 (30') Workplan System team activities (System team) <p style="color: red; font-style: italic;">*Summary of the DM sensor and readout design splinter discussion will be provided.</p>						
>	<u>14:00</u>	-	18:00	<240 minutes>		
>	<u>16:00</u>	-	18:00	X-IFU Consortium board meeting	Didier Barret	[120']
<p><u>Agenda of the X-IFU Consortium Board meeting (Didier Barret):</u></p> <ul style="list-style-type: none"> - X-IFU Consortium Governance Document - Didier - 10' - X-IFU Project Management Plan - Thien - 20' - X-IFU Science Management Plan - Didier - 10' - X-IFU study status at Mission Consolidation Review - Thien - 20' - CoB member reports (2 slides per country) - All - 60' - XSAT status report (after the first 2 year term) - Didier - 10' - AOB 						
	<u>16:00</u>	-	18:00	<120 minutes>		

CM Day 2: 24/05/2016, (09:00 – 18:10)

*Location: Boothstraat 7 in Utrecht (down town), see for more information
<http://www.zaalverhuur7.nl>*

Instructions to go to the meeting place: Boothzaal, Boothstraat 7, 3512 BT Utrecht

Walking from Utrecht Central Station:

Zaalverhuur7 (The Boothzaal) is in the center of Utrecht, between Janskerkhof (square with a big church) and the Voorstraat. It is a 15 minute walk from Central Station. You can walk through the shopping mall Hoog Catharijne (next to the Central station) or outside the shopping mall, to Vredenburg and Lange Viestraat, towards Janskerkhof, The Boothstraat is in a little alley on the left side of the big Jans church, coming from Central Station.

Public Transport:

You can reach Zaalverhuur7 very easily with public transport. Every other minute busses stop at Janskerkhof. Get off at busstop Janskerkhof. The Boothstraat is in a little alley on the left side of the church, coming from Central Station. City busses you can take: 2 (Museumkwartier), 28 (to De Uithof P+R), 8 (Overvecht via CS), 11 (Uithof/WKZ). And the next regional busses: 50 (Wageningen), 52 (to Zeist, Amersfoort), 53 (Driebergen), 55 (to Maartensdijk) en 74 (Zeist)

<http://u-ov.info/plan-mijn-reis/visit-utrecht-area/>

Parking car:

- o Parking de Grifthoek (850 meter walking distance). For this parking garage you can buy parking exits tickets from the host (12 euro per day, buy at Boothzaal).*
- o Parking garage de Kruisstraat (€2/hour at 700 meters walking distance);*
- o You can also park at Janskerkhof (€4,60/ hour at 50 meters walking distance).*

09:00	-	09:15	Introduction - Science organization	Didier Barret	[15']
09:15	-	09:30	Introduction - Status report on the project	Thien Lam Trong	[15']
09:30	-	09:50	Athena study status	Alex Stefanescu	[20']
09:50	-	10:20	X-IFU Science Advisory Team Activities	Xavier Barcons	[30']
10:20	-	10:35	Status of the X-IFU end-to-end simulations	Philippe Peille	[15']
10:35	-	11:05	Coffee break		[30']
11:05	-	11:35	System study status	Jean-Michel Mesnager	[30']
11:35	-	12:05	The X-IFU current baseline design	Françoise Douchin	[30']
12:05	-	12:25	The X-IFU mechanical design	Irwin Maussang	[20']
12:25	-	12:45	The X-IFU preliminary dewar design	Alice Pradines	[20']
12:45	-	12:55	DCS status & assumptions	Michle Le Du	[10']
12:55	-	13:10	Cryostat development activities at INTA	Miguel Mas Hesse	[15']
13:10	-	14:25	Lunch break		[75']
14:25	-	14:45	Thermal architecture	Christophe Daniel/Ivan Charles	[20']
14:45	-	15:05	Electrical architecture	Bruno Vella	[20']
15:05	-	15:25	Focus on EMC issues	Emilie Gloaguen	[20']
15:25	-	15:45	Status of FDM developments	Hiroki Akamatsu	[20']
15:45	-	16:05	Status of TES developments	Simon Bandler	[20']
16:05	-	16:35	Coffee break		[30']
16:35	-	17:00	Status of background analysis and cyroAC development	Claudio Macculi/Flavio Gatti	[25']
17:00	-	17:20	Status of FPA related technology developments	Henk van Weers	[20']
17:20	-	17:40	The X-IFU Instrument and Science Center	Natalie Webb	[20']
17:40	-	18:10	WFI update	Arne Rau	[30']

CM Day 3: 25/05/2016, (09:00 – 12:50)

Location: Boothstraat 7 in Utrecht (down town), see for more information

<http://www.zaalverhuur7.nl>

09:00	–	09:10	SXS overview	Kazuhisa Mitsuda	[10']
09:10	–	09:35	Performance of the SXS cryogenic system	Noriko Yamasaki	[25']
09:35	–	10:05	Operating the SXS in flight (including calibration)	Caroline Kilbourne	[30']
10:05	–	10:20	SXS first data	Rich Kelley	[15']
10:20	–	10:30	European contributions to SXS	Jan-Willem den Herder	[10']
10:30	–	10:40	Cooler activities in Japan	Noriko Yamasaki	[10']
10:40	–	10:50	Door and Power Distribution Unit updates	Michal Getka	[10']
10:50	–	11:20	Coffee break		[30']
11:20	–	11:30	WFEE ASICv1 design - Fundamental noise limit vs Impedance matching	Damien Prêle	[10']
11:30	–	11:40	DRE development updates (including the DAC R&T program)	Laurent Ravera	[10']
11:40	–	11:50	Aperture assembly update	Etienne Renotte	[10']
11:50	–	12:00	Filter wheel update	Stéphane Paltani	[10']
12:00	–	12:15	FPA and Dewar filter updates	Marco Barbera	[15']
12:15	–	12:25	SQUID development plan updates	Mikko Kiviranta	[10']
12:25	–	12:35	The instrument control unit updates	Luca Valenziano	[10']
12:35	–	12:50	Conclusions of the meeting	Didier Barret/Thien Lam Trong	[15']

Splinter meetings Day 3: 25/05/2016, (14:00 – 18:00)

Location: Location: Boothstraat 7 in Utrecht (down town), see for more information

<http://www.zaalverhuur7.nl>

>	14:00	–	16:00	Instrument Science Center	Natalie Webb	[120']
<u>Agenda of the X-IFU Instrument Science Center splinter (Natalie Webb)</u>						

14:00 - 14:30 X-IFU operations - Jean-Michel Mesnager
 14:30 - 15:00 Science Ground Segment approach recommended to ESA Natalie Webb + all for discussion
 15:00 - 16:00 Division of XISC tasks and preparation of the response to the instrument AO Natalie Webb + all for discussion

14:00	-	16:00	<120 minutes>		
-------	---	-------	---------------	--	--

>	16:00	-	18:00	untitled	Luciano Gottardi	[120']
---	-------	---	-------	----------	------------------	--------

Agenda of the TES device physics splinter (Luciano Gottardi)

1. Progress on 2D modeling of TESs
2. Update on TES physics-related experimental results at SRON,GSFC and NIST

>	14:00	-	16:00	<120 minutes>		
---	-------	---	-------	---------------	--	--

>	14:00	-	16:00	CryoAC (and FPA)	Daniel Haas	[120']
---	-------	---	-------	------------------	-------------	--------

Agenda of the CyroAC splinter: (Daniel Haas)

- 14:00 - 14:10 Introduction/Goal (Daniel)
- 14:10 - 14:30 Status of CryoAC sensor development, test results etc. (INAF/INFN, Flavio/Claudio)
- 14:30 - 14:50 Status of CryoAC Integration into the DM (Johannes)
- 14:50 - 15:10 Impact of CryoAC on TES sensors (Roland)
- 15:10 - 15:30 Cold CryoAC electronics (Guido)
- 15:30 - 15:50 Planning/Milestones (INAF/INFN Claudio/Andrea)
- 15:50 - 16:00 Discussions

14:00	-	16:00	<120 minutes>		
-------	---	-------	---------------	--	--

>	16:00	-	18:00	Background	Simone Lotti	[120']
---	-------	---	-------	------------	--------------	--------

Agenda of the Background splinter (Simone Lotti)

- Brief resume of bkg uncertainties and software validation status (S. Lotti - contributions by AREMBES WP3)
- GCR induced background: X-IFU (S. Lotti)
 - Different FPA configurations: Electron shield distance and thickness
 - Reducing fluorescences: multi-layered shield
 - Expected background level
 - Internal environment
- GCR induced background: WFI (S. Lotti - contributions by A. Kienlin)
 - Expected background level
 - Internal environment
- Background induced by low energy particles
 - EPIC 2.0: a second youth for XMM-Newton's workhorse (S. Molendi)

- L2 low energy environment (S. Lotti - contributions by C. Jacquy)
- Athena mirrors focalization efficiency (T. Mineo)
- Magnetic diverter efficiency assumptions (T. Mineo/S. Lotti)
- Energy loss inside the optical/UV filters (S. Lotti)
- Low energy particles expected fluxes at X-IFU focal plane (S. Lotti)
- Discussion/AOB

>	<u>16:00</u>	-	18:00	<120 minutes>		
>	<u>16:00</u>	-	18:00	Aperture cylinder/Dewar interface	Ivan Charles/Pierre Jamotton	[120']

Agenda of the aperture cylinder splinter (Ivan Charles & Pierre Jamotton):

Design overview and main drivers of Astro H aperture cylinder (Goddard)
 Lesson learnt on Astro-H + Issues (Goddard)
 Aperture cylinder I/F and integration in Astro H SXS dewar (Jaxa)
 Main requirements of X-IFU aperture cylinder (CSL) (including filters (UNIPA/UNIPA))
 (IR filtering, EMC filtering, thermal, mechanical,...)
 Way to proceed to a preliminary specification
 Background / work identified / critical points identified at Institute (CSL & UNIPA)
 Mechanical, thermal, EMI models
 Definition of interfaces (mechanical, thermal, electrical, optical, gas management)
 Way to proceed to define a preliminary set of interfaces between aperture cylinder & dewar, aperture cylinder & filters, aperture cylinder & FPA.

>	<u>16:00</u>	-	18:00	<120 minutes>		
>	<u>16:00</u>	-	18:00	Deadtime definition	Jean-Michel Mesnager/François Pajot	[120']

Agenda of the deadtime definition meeting (Jean-Michel Mesnager & François Pajot):

Introduction (JMM)
 What has been done in the budget document (JMM)
 Back to the original need and definitions (TBD, XSAT)
 Calibration dead time (PP)
 CryoAC deadtime (CM)
 Main detector deadtime (PP)
 Discussion & conclusion (all)

	<u>16:00</u>	-	18:00	<120 minutes>		
--	--------------	---	-------	---------------	--	--

meeting id: 4EAAE79D-E9F9-4674-B607-464DA851068A

(Last updated: 20 mai 2016 10:42:11)