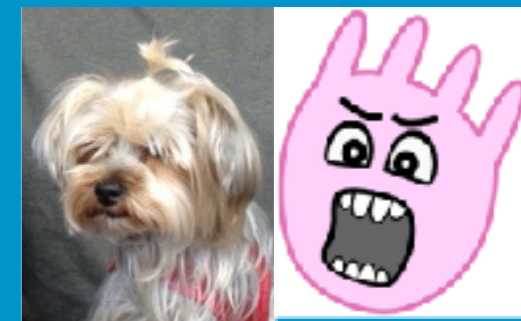
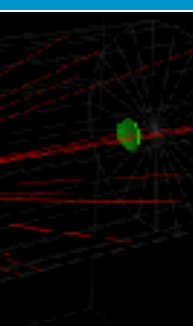
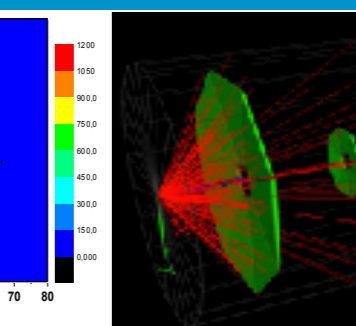
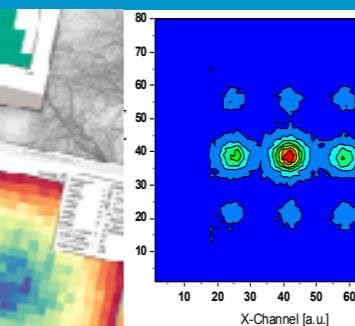
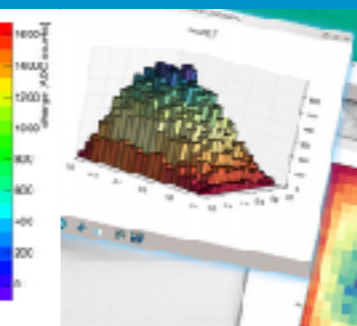
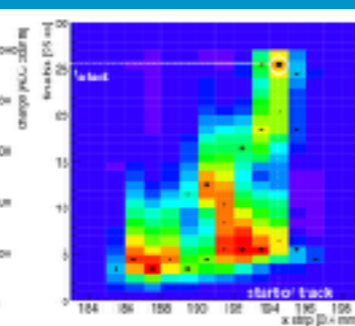
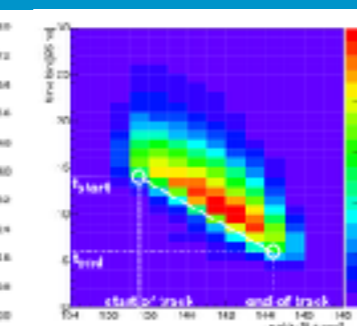
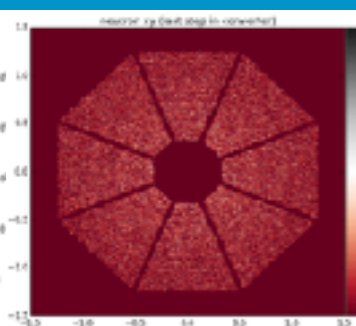
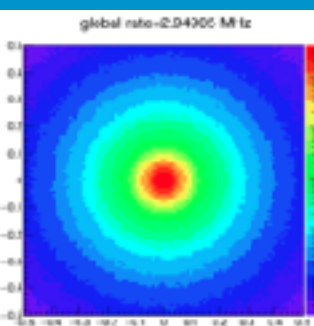
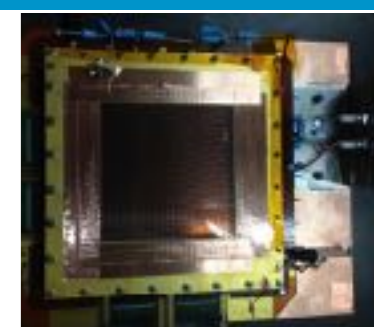
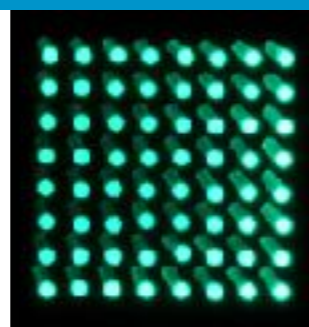
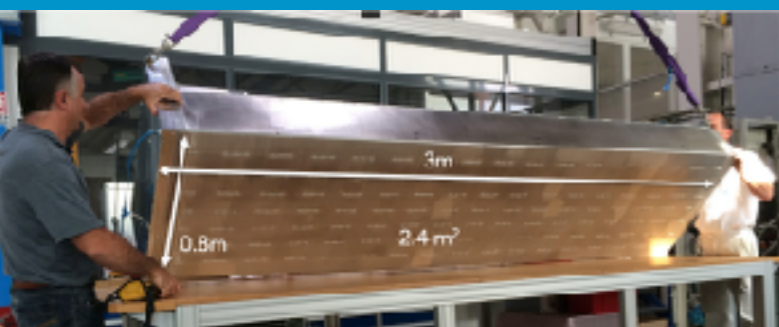


Introduction to the Detector and Event Formation Session

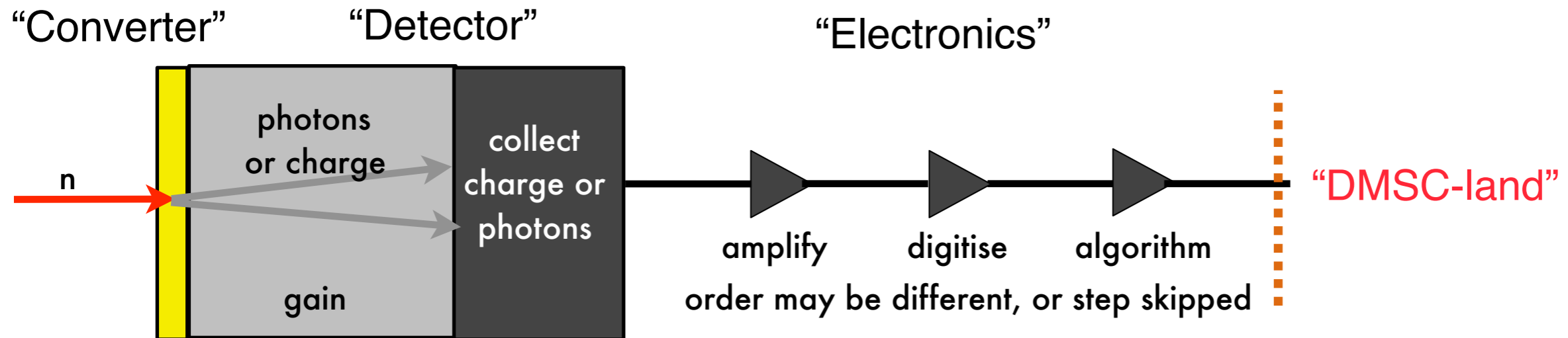
Tobias Richter, Richard Hall-Wilton



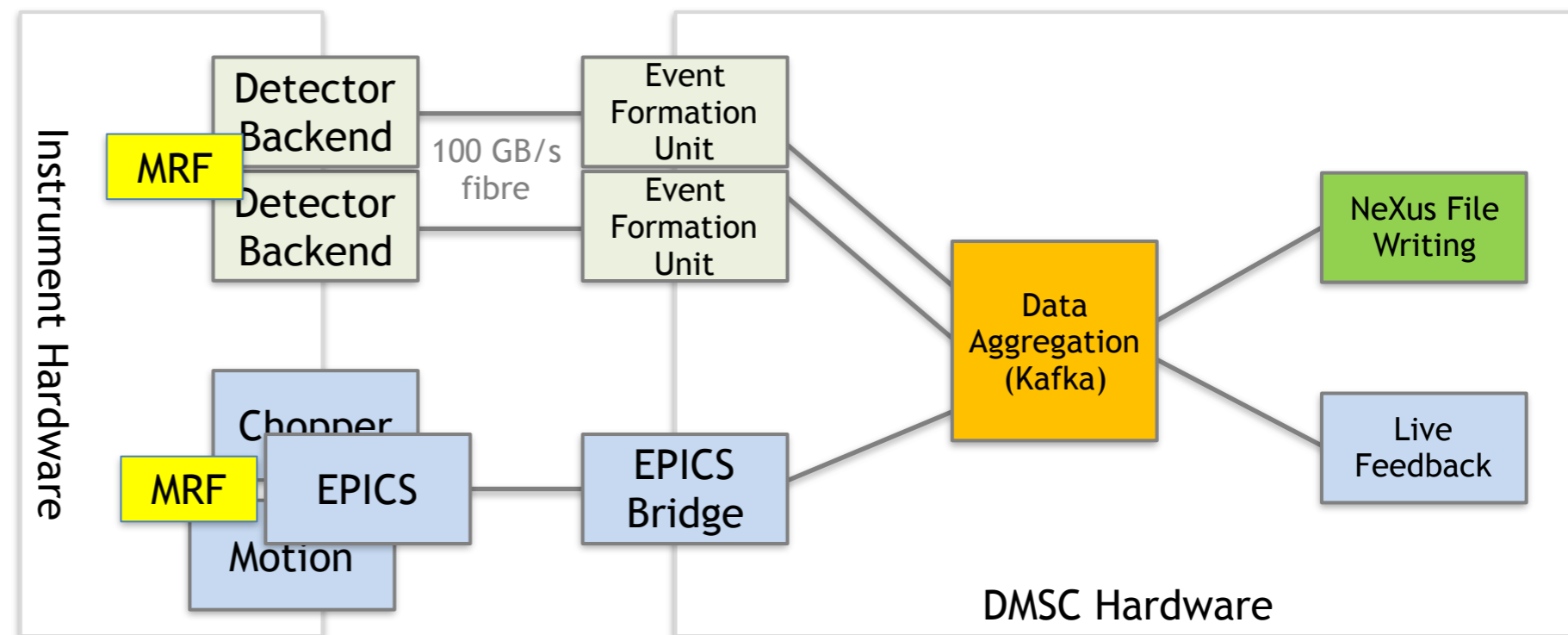
www.europeanspallationsource.se



Today's Session



“DMSC-land”:



Start with DMSC and Event Formation and move towards Detectors as the day progresses

Morning Session



Data Acquisition: Detector Electronics and Event formation

Event Formation Overview	<i>Tobias RICHTER</i>
<i>Tänkartanken, ESS Headquarters</i>	10:00 - 10:20
Event Formation Visualisation and Prototypes	<i>Dorothea PFEIFFER et al.</i>
Introduction and putting it all together for detector electronics readout hardware	<i>Dr. Scott KOLYA</i>
Backend network to Event Formation and DMSC	<i>Steven ALCOCK</i>
Front end collection network	<i>Isa UZUN</i>
<i>Tänkartanken, ESS Headquarters</i>	11:20 - 11:40
Detector Racks and Infrastructure	<i>Paul SPITERI</i> 
<i>Tänkartanken, ESS Headquarters</i>	11:40 - 12:00

The Data Acquisition chain

Hardware and Software

Prototype Hardware

Afternoon Session



Detector Status for 6 of the Instruments

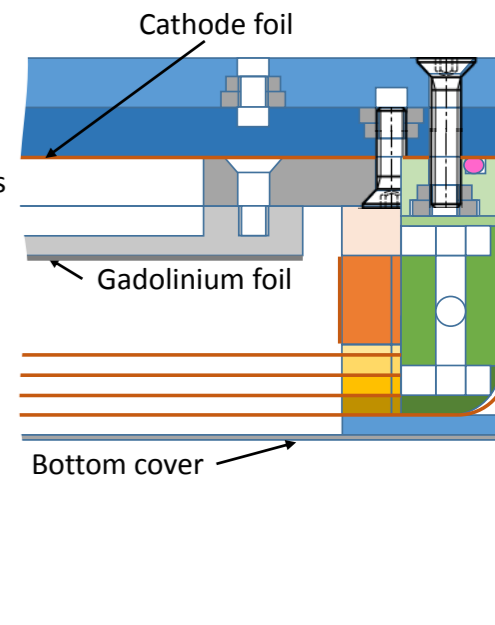
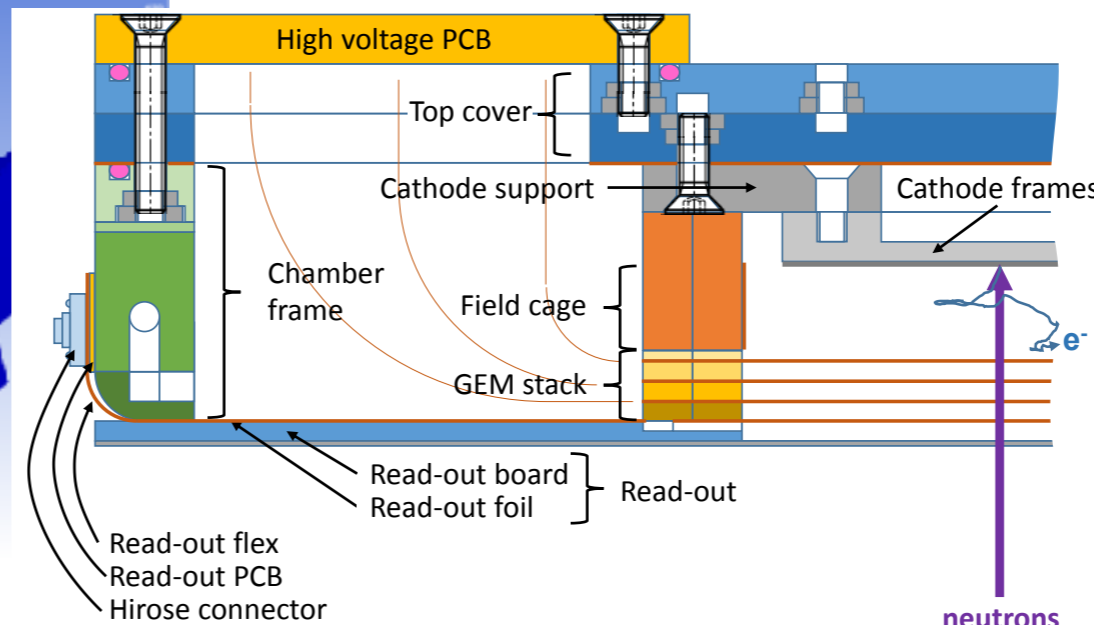
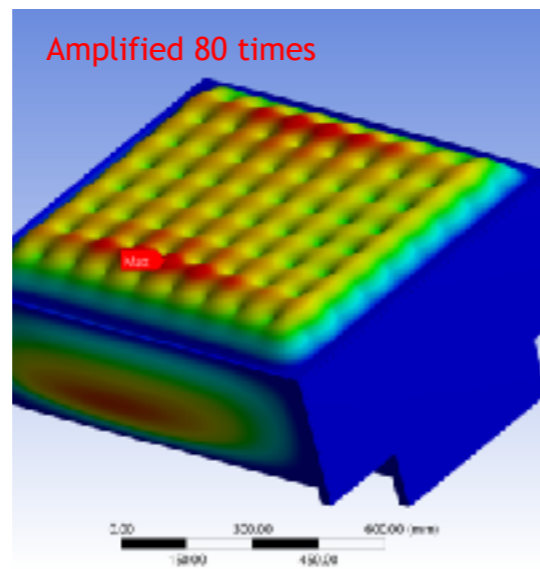
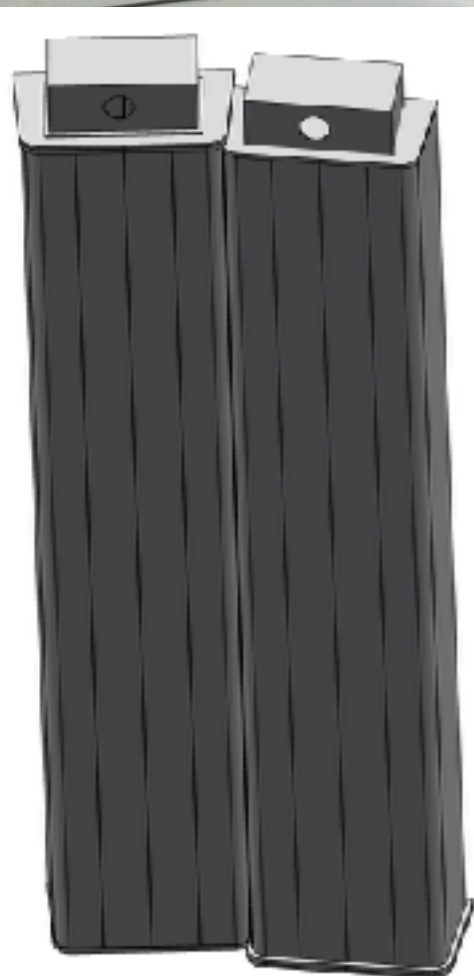
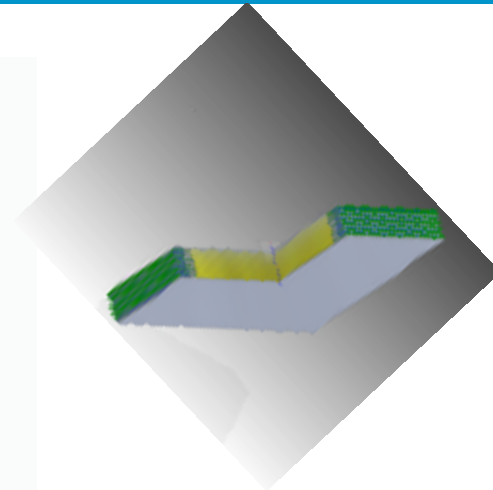
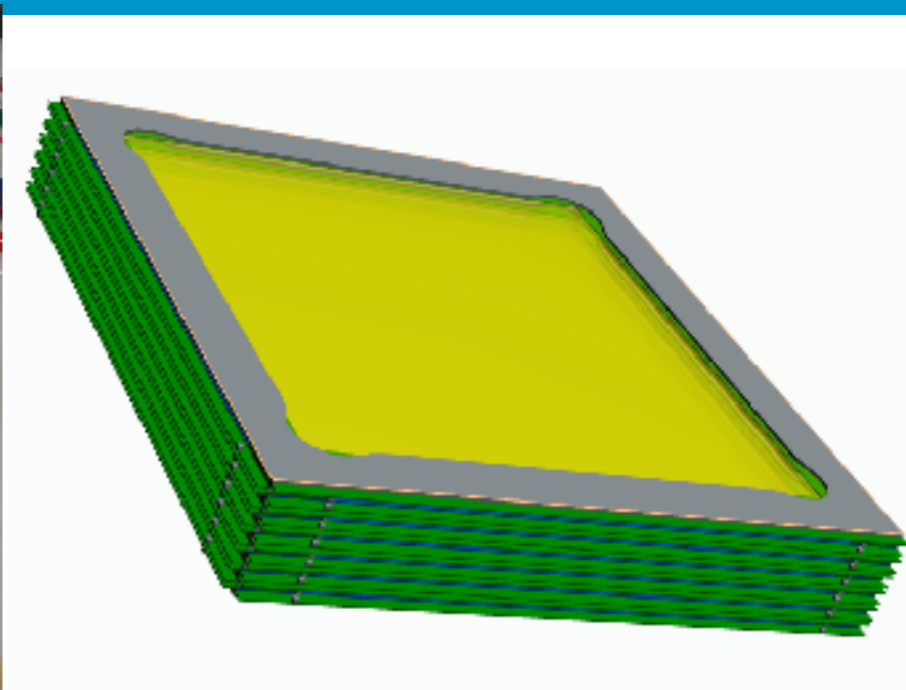
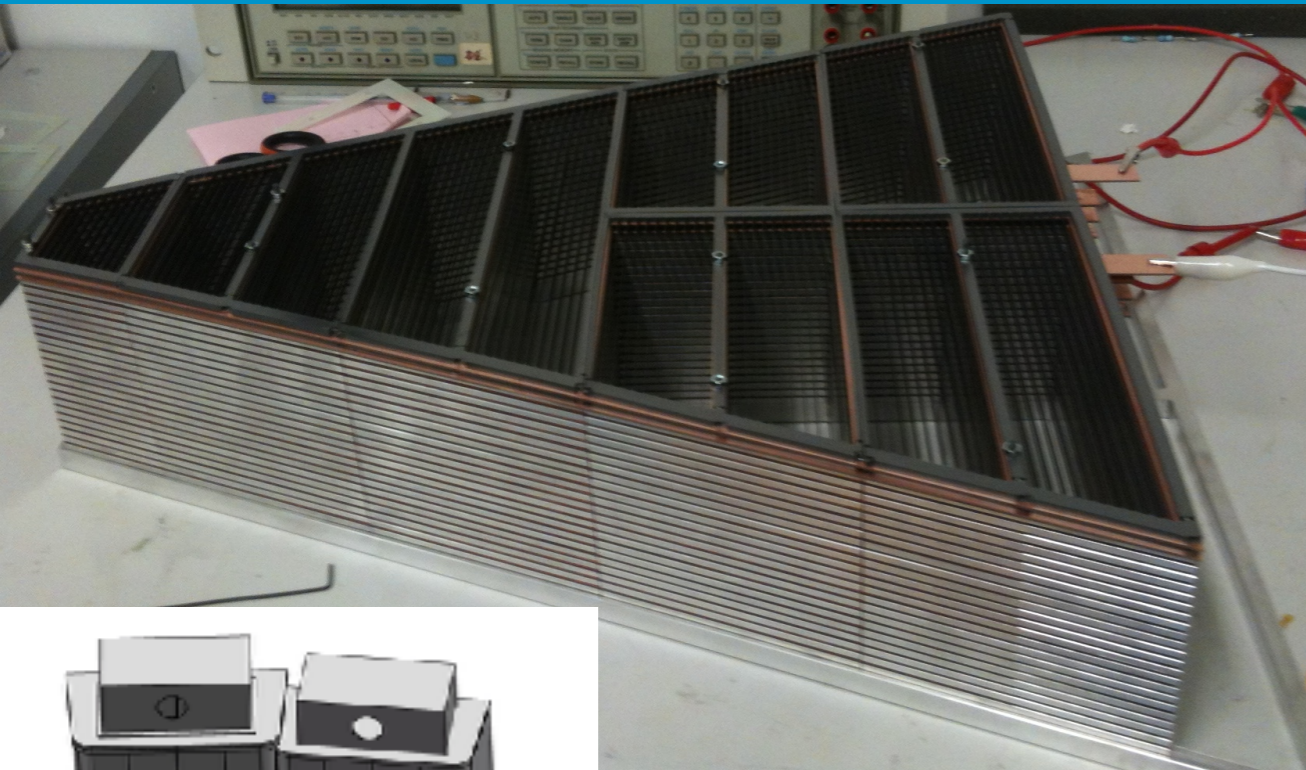
(Next IKON: we will go through detector status for other instruments)

13:00	Integrated Schedule and Prioritization: First 8 Instruments <i>Dr. Shane Kennedy,...</i>	Guide alignment <i>Fabien Rey</i>	Status of AmCLD detector development for BEER Instrument	Instrument and experiment control <i>Jonathan Taylor...</i>
			Status of BandGEM detector development for LOKI Instrument	
14:00	<i>Stora Tuna, ESS Headquarter</i>	<i>Christinehof, ESS Headquarters</i>	Status of SoNDe detector development for SKA...	
Coffee break <i>ESS Headquarter and Medicon Village</i>				
				14:30 - 15:00
15:00	Integrated Schedule and Prioritization: Instruments 9-15 <i>Mrs. Sofie Ossowsk...</i>	Status of Gd-GEM detector development for NMX Instrument	Neutron Guides procurement <i>Iain Sutton</i>	
		Status of MultiGrid Detector Development for CSPEC and TREX Instrument		
16:00	<i>Stora Tuna, ESS Headquarters</i>	Detector Simulation of Instruments <i>Tänkartanken, ESS Headquarters</i>	<i>Christinehof, ESS Headquarters</i>	
Site Visit				



Afternoon Session

Significant detail on designs



Detector Baseline

We have a detector and electronics baseline for all instruments

Status shown today?

Event Formation
Visualisation?

Instrument	Installation Start (est.)	Lead Institute	DG Contact	Main Detector Technology	Main Detector Developer	Front End Readout	FE Readout Developer	Integration Model
LOKI	Q4 2019	ISIS	Kalliopi Kanaki	BandGEM	Milan	Gemma/Gemini	Milan/INFN	C
NMX	Q1 2021	ESS	Dorothea Pfeiffer	Gd-GEM	CERN/ESS (BrightnESS)	VMM	CERN/ESS (BrightnESS)	A
ODIN	Q4 2019	TUM/PSI	Richard Hall-Wilton	MCP, Silicon, etc	Lots	Lots	Lots	XX
BEER	Q1 2020	HZG/NPI	Irina Stefanescu	A1CLD, AmCLD	HZG/DENEX	Delay Line	HZG/DENEX	Probably C
SKADI	Q1 2021	FZJ	Ramsey Al Jebali	SoNDE Pix Scinit	SoNDE	IDEAS ASIC	SoNDE	Probably B/C
DREAM	Q4 2019	FZJ	Irina Stefanescu	Jalouse	Julich/CDT	CIpix	Julich/CDT	C
ESTIA	Q4 2019	PSI	Francesco Piscitelli	Multi-Blade	Wigner/ESS (BrightnESS)	VMM	ESS Led (IK + BrightnESS)	A
C-SPEC	Q4 2019	TUM	Anton Khaplanov	Multi-Grid	ILL/CERN (BrightnESS)	VMM	ESS Led (IK + BrightnESS)	A
BIFROST	Q2 2020	DTU	Richard Hall-Wilton	He3 Tubes	Commercial	Commercial?	Commercial?	Probably X
HEIMDAL	Q3 2021	AU(DK)	Richard Hall-Wilton	WLS-Scinti	Unknown	??ASIC?	Unknown	Probably B
FREIA	Q1 2023	ISIS	Francesco Piscitelli	Multi-Blade	Wigner/ESS (BrightnESS)	VMM	ESS Led (IK+ BrightnESS)	A
T-REX	Q4 2021	Julich	Anton Khaplanov	Multi-Grid	ILL/CERN (BrightnESS)	VMM	ESS Led (IK+ BrightnESS)	A
MAGIC	Q1 2020	LLB	Irina Stefanescu	Jalouse	Julich/CDT	CIpix	Julich/CDT	C
MIRACLES	Q3 2022	ESS-B	Richard Hall-Wilton	He3 Tubes	Commercial	Commercial?	Commercial?	Probably X
VESPA	Q2 2022	CNR	Richard Hall-Wilton	He3 Tubes	Commercial	Commercial?	Commercial?	Probably X
TEST BEAMLIN	Q1 2019	ESS	Richard Hall-Wilton	Camera	Commercial	Proprietary	Unknown	Probably XX

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Utgard and Embla Visit

A: Boron layers Multi-Wire chamber (Irina Stefanescu)

- ▶ Generic detector testing.
- ▶ Presentation of the home-designed readout electronics that is currently being tested in a small 10B-based test detector.
- ▶ Presentation of the 3D print of the Jalousie mantle detector for the DREAM instrument.

B: Multi-Blade (Francesco Piscitelli)

- ▶ Mockup of a reflectometer and A3 picture of MB16 (which is currently being tested at ISIS).
- ▶ Plexi-glass showing two blades.
- ▶ Development of parts for the data acquisition for the MB detectors, cassette from MB16.
- ▶ Amplifiers testing setup.
- ▶ Screen showing data flow.

C: Multi-Grid (Anton Khaplanov)

- ▶ Demonstration of the MG.CNCS operating (2016).
- ▶ Presentation available with results from CNCS (2016-2017).
- ▶ Open MG.24 (2016-2017) - Demonstration of grids modules for MG.24.

D: Beam Monitors (Fatima Issa)

- ▶ Beam monitors display: ORDELA, LND, ISIS, MIRROTRON, CDT.
- ▶ Results of the irradiation on a poster and a screen.

E: SoNDe module (Ramsey Al Jebali)

- ▶ 3D print of the 2x2 prototype.
- ▶ Real 2x Multi-anode Photomultipliers.
- ▶ MaPMT-ROSMAP-MP connected to DMSC event formation.

F: IN5 Multi-Grid demonstrator (Anton Khaplanov)

- ▶ Multi-Grid demonstrator built during the EU CRISP project.

G: SAD Sample Environment Integration (Anders Pettersson)

- ▶ Demonstration of the current status of Sample Environment and utility supplies control integration.

J: SAD TEFI Temperature and Fields (Alexander Holmes)

- ▶ Demonstration of Huginn: A Peltier-based sub-cryostat for ultra-rapid and precise temperature control.

M: Choppers controls integration

- ▶ Standardization and integration of chopper controls towards EPICS and NICOS via CHIC (Chopper Integration Controller).

N:DMSC-Experiment Control (Nikhil Biyani)

- ▶ Demonstration of the NICOS instrument control framework.

O:DMSC-Events Formation

- ▶ Overview of ESS Data Acquisition and Streaming (ESSIIP) (Afonso Mukai).
- ▶ Demonstration of Processing for various detector types (Morten Jagd Christensen).
 - ▶ SoNDe
 - ▶ Gd-GEM
 - ▶ Multi-Grid
- ▶ DAQUIRI raw detector data visualisation for commissioning (Martin Shetty).

P: ICS Instrument Controls (David Broderick)

- ▶ EPICS control.

Q: DG-Readout to DMSC Link Demonstrator (Steven Alcock)

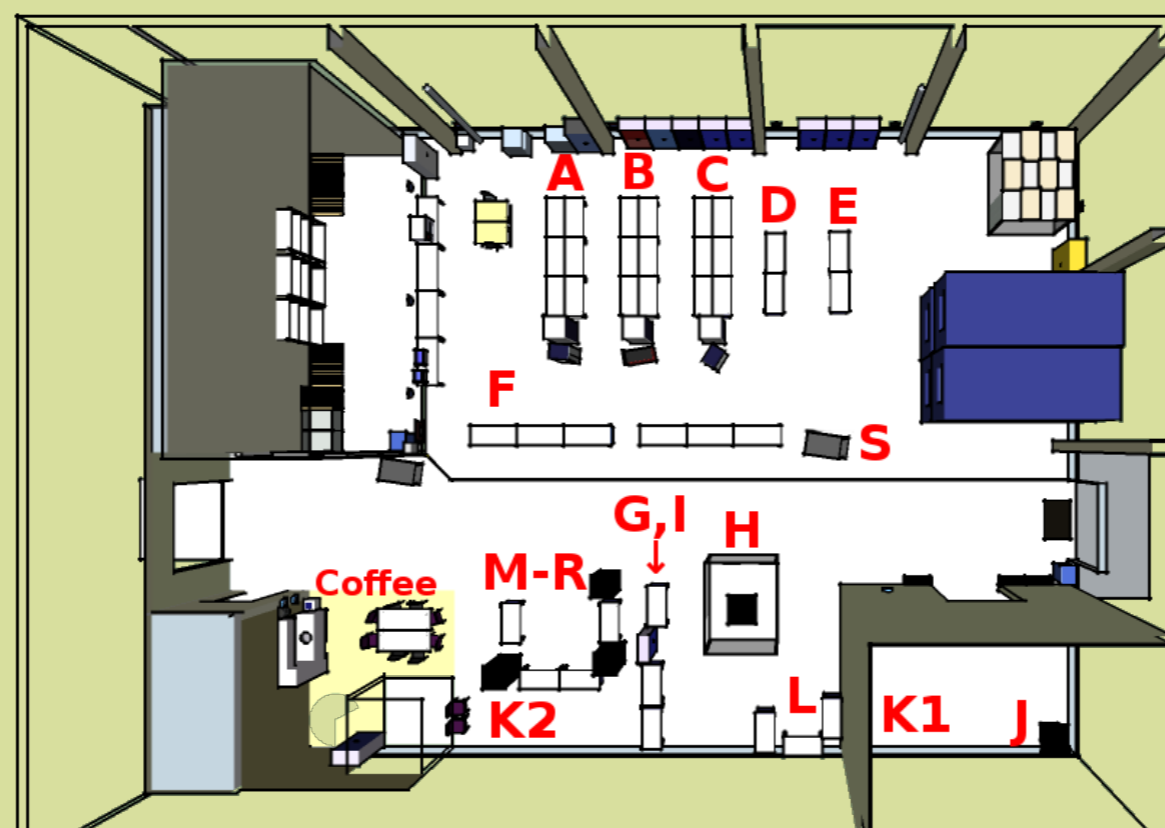
- ▶ High Speed Data Generator: high speed (100 G) link to the DMSC.

R: DG-Readout ICS Integration Demonstrator (Steven Alcock)

- ▶ ESSIIP Demonstrator (Controls/Timing)

S: B4C coatings from ESS Detector Coatings Workshop in Linköping

- ▶ Example of B₄C coatings on different kind of substrates.
- ▶ B₄C coatings done on larger size samples.



H: SAD Kinematic mounts (Borja Perez)

- ▶ Prototype mounting systems.
- ▶ Demonstration of alignment concepts.

I: SAD PREMP High Pressure and Mechanical Processing (Malcolm Guthrie)

- ▶ Demonstration of diamond anvil cell prototypes.

K1: SAD Utility supplies (H. Schneider)

- ▶ Cooling water supply panel.

K2: SAD Utility Supplies (H. Schneider)

- ▶ Power supply Monitoring.

L: SAD FLUCO Fluids incl. Gases, Vapor and Complex Fluids (Harald Schneider)

- ▶ Cave types and standards for the utility supply.
- ▶ Parts of FLUCO sample environment.

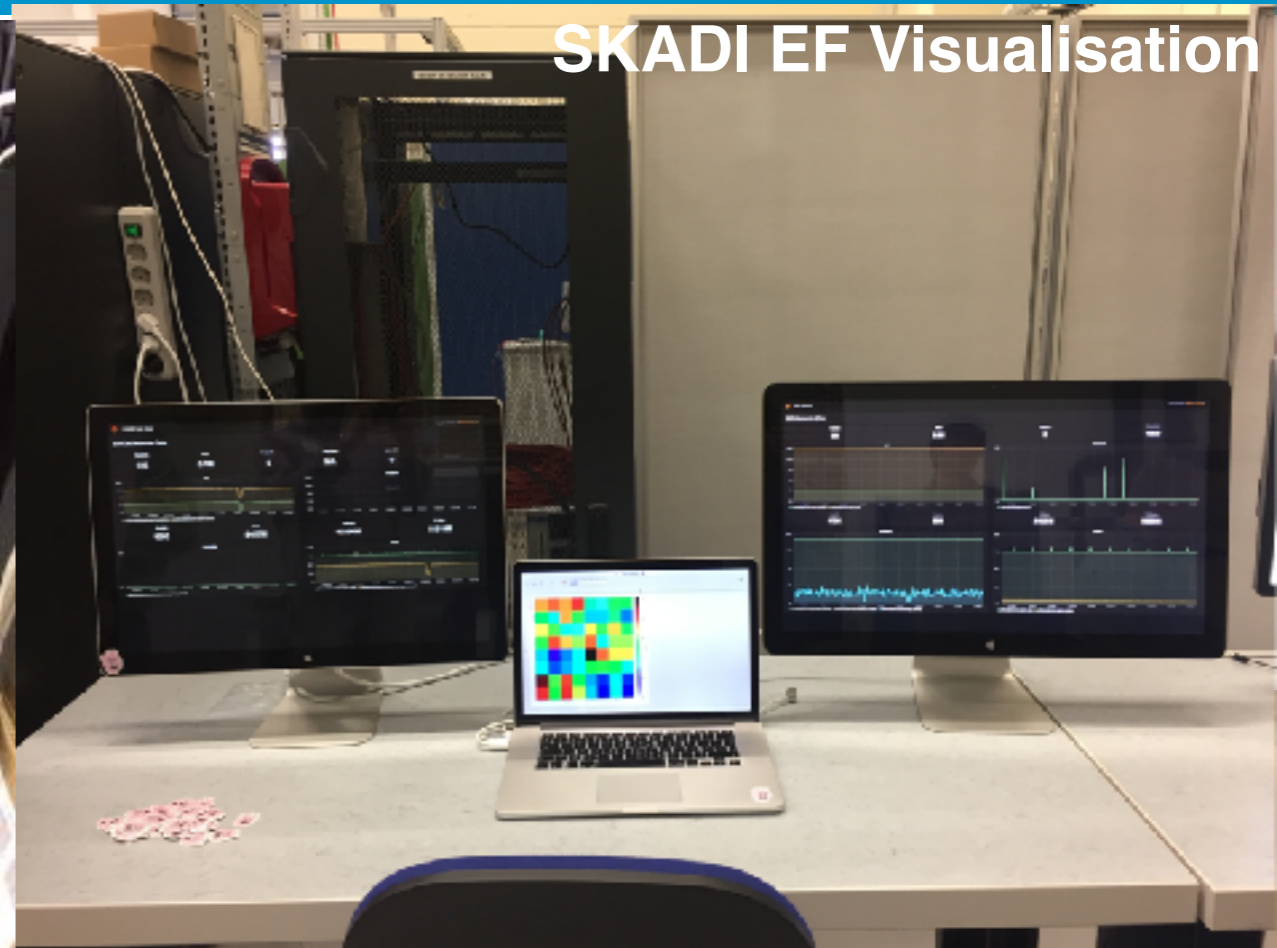
Utgard and Embla Visit



We have the facilities in Lund to support you for detector installation

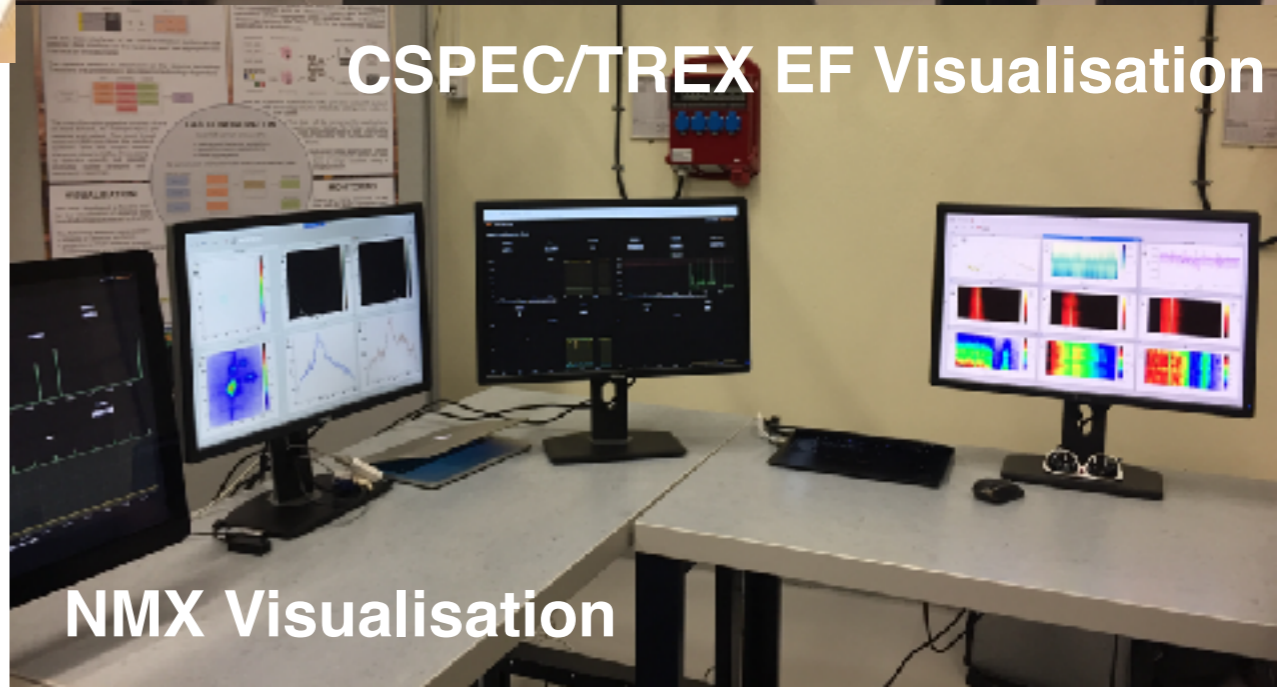


Timing and Data Demonstrator



SKADI EF Visualisation

Demonstrators for key Detector, Timing System and Event formation Interfaces



CSPEC/TREX EF Visualisation

NMX Visualisation

Utgard and Embla Visit



We have the facilities in Lund to support you for detector installation




Beam Monitors



Yesterday



Beam monitor in *Fatima ISSA* 
general marke...

12:00

Beam monitors electronics

Stora Tuna, ESS Headquarters

Beam monitoring on BIFROST

Stora Tuna, ESS Headquarters

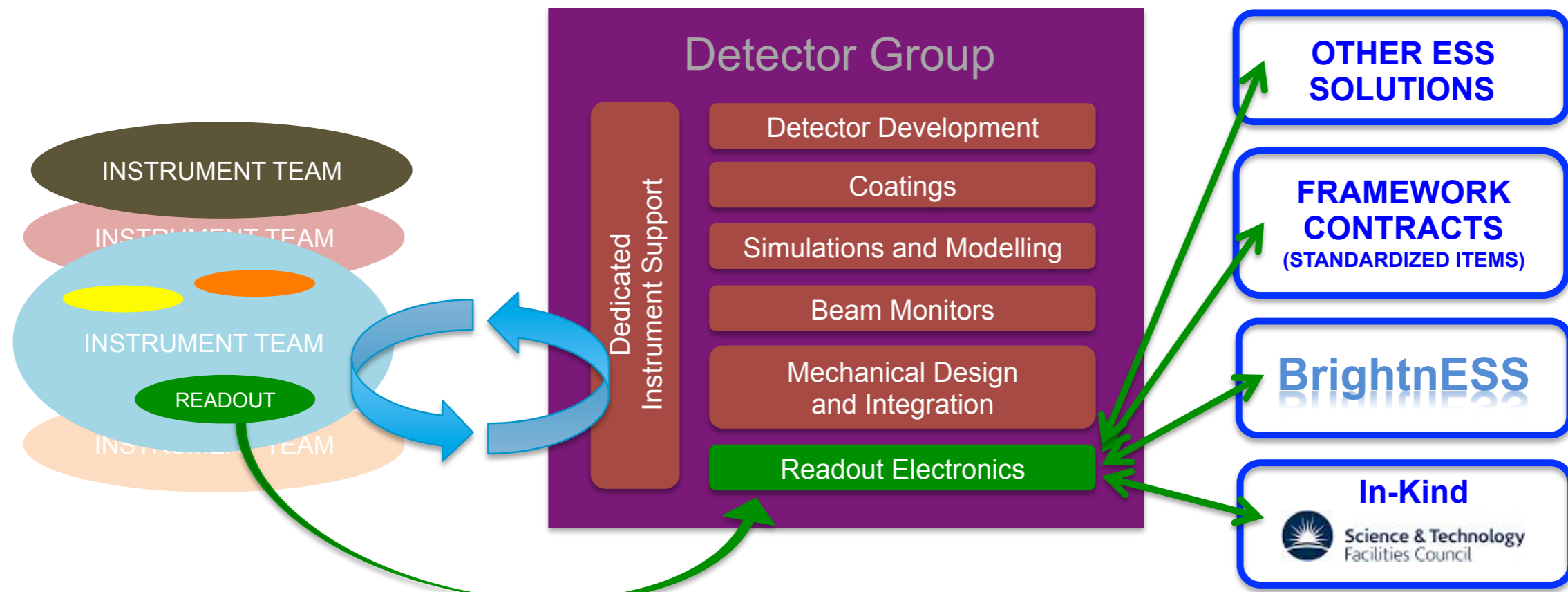
More detail needed on both scientific and diagnostic requirements

We are here to support you

Detector Group is here to help you with all things related to Detectors



The readout team provide standardized solutions and help with electronics integration



Summary

- Data Acquisition is prototyped start to finish
- Interfaces are defined managed: close collaboration
- Good collaboration for detailed instrument design
- Enjoy the session ...

Detector and Event Formation Groups

With some of our in-kind partners



brightness

SoNDe

