



# The User Calls at MAX IV

Marjolein Thunnissen

# MAX IV is ....



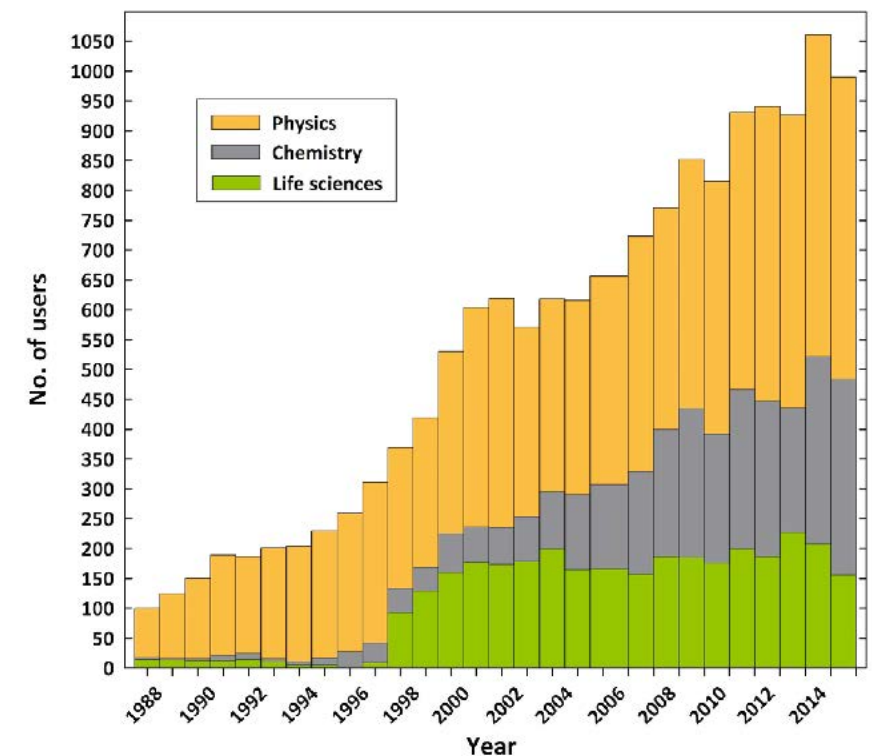
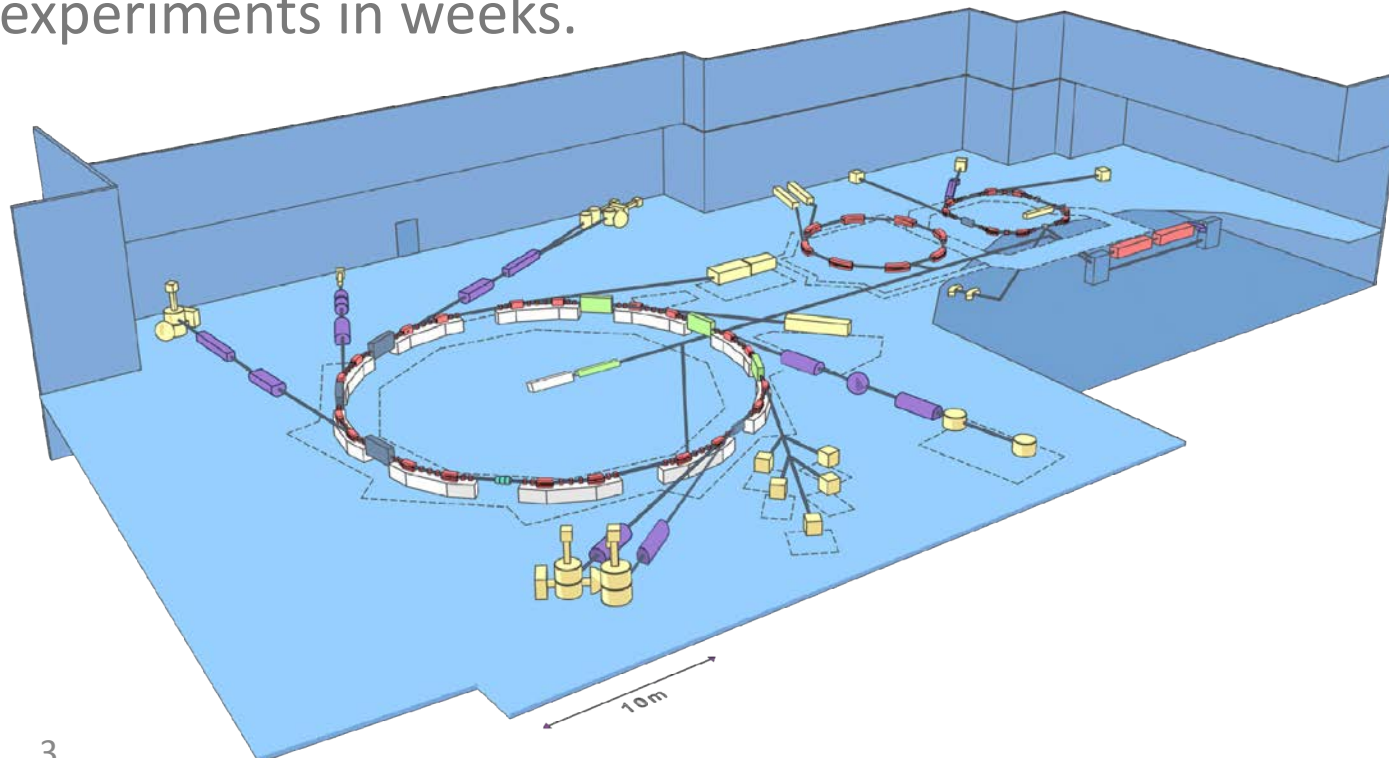
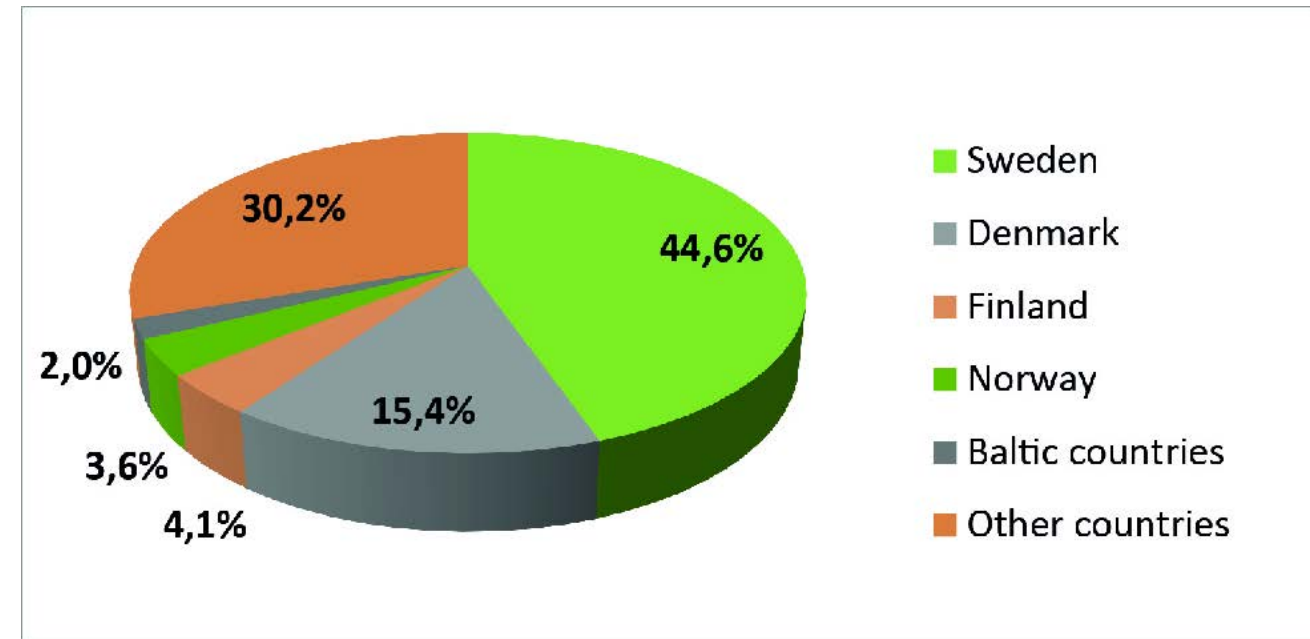
Fotograf: Klas Andersson

- A new high brightness synchrotron light facility in Lund, southern Sweden.
- A Swedish National Laboratory hosted by Lund University with some international partners! 🇩🇪 🇫🇮 🇸🇪
- A facility open to researchers from Sweden, Scandinavia/the Baltic Region and the whole world.
- A continuation of some 30 years of synchrotron activities in Lund!
- The biggest Swedish investment in research infrastructures ever! ~ 5 billion SEK
- The first diffraction limited light-source



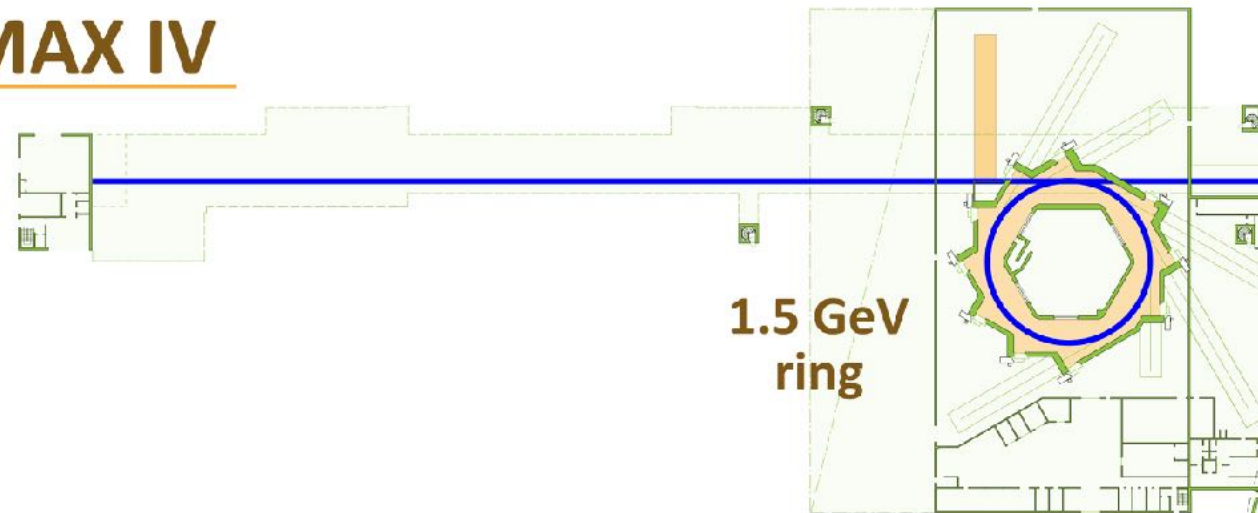
# MAX-Lab was.....

- A facility that served users for nearly 30 years.
- ~ 1000 researchers yearly.
- Users came from 160 universities and institutes in 35 different countries.
- National laboratory – “open access”
- Different experiments at different beam lines, hard to soft X-rays (majority).
- MX : experiments in hours/ XPS : experiments in weeks.



# Our journey

## MAX IV

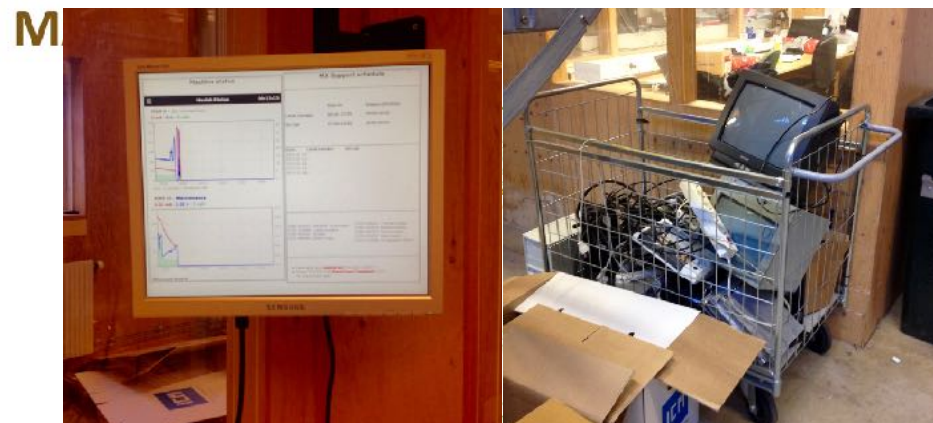


Inauguration 21st June 2016



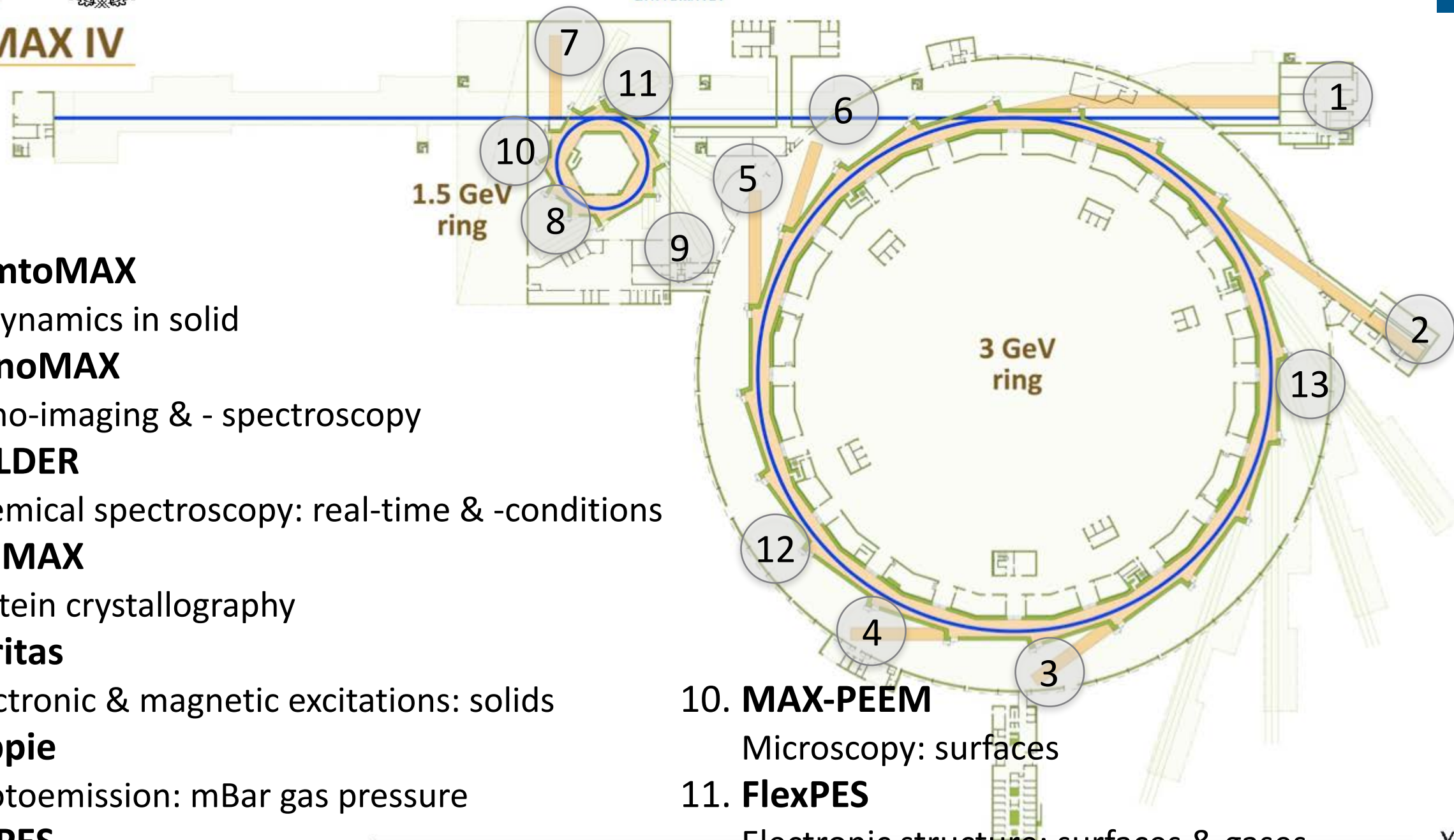
## MAX II - III

Closed 13th December 2015





## MAX IV



1. **FemtoMAX**  
fs dynamics in solid
2. **NanoMAX**  
Nano-imaging & - spectroscopy
3. **BALDER**  
Chemical spectroscopy: real-time & -conditions
4. **BioMAX**  
Protein crystallography
5. **Veritas**  
Electronic & magnetic excitations: solids
6. **Hippie**  
Photoemission: mBar gas pressure
7. **ARPES**  
Electronic structure: solids
8. **FinEstBeaMS**  
Electronic structure: gases, aerosols
9. **SPECIES**  
Electronic & magnetic excitations: surfaces

10. **MAX-PEEM**  
Microscopy: surfaces
11. **FlexPES**  
Electronic structure: surfaces & gases
12. **CoSAXS**  
Geometric structure & correlation: (bio) liquids
13. **SoftiMAX**  
Microscopy & method development
14. **DanMAX**  
Powder diffraction & imaging: materials science



Vetenskapsrådet

# Our challenges

- Existing user community faced with dark period.
- New user communities as we are building beam lines with new capabilities and different experimental conditions.
- From a small facility to brightest synchrotron light source.
- 3 machines + beam lines installations & commissioning, not an easy operation.

# 1 year since opening

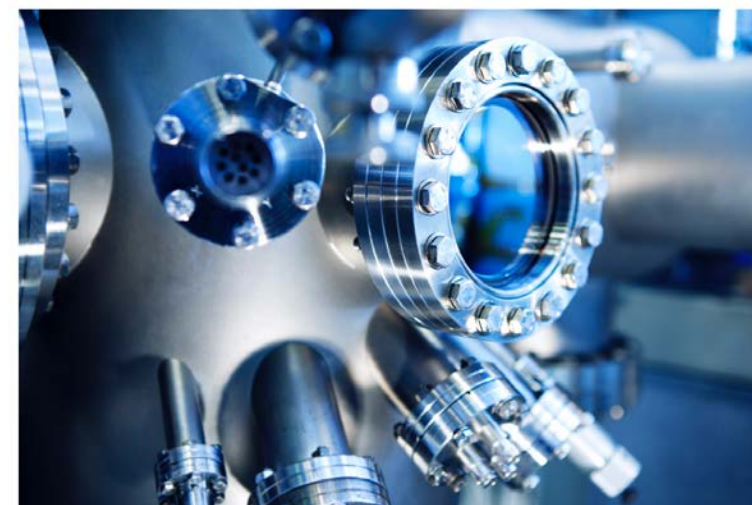
- 25 User Groups
- 50 different research projects
- 4 different beam lines
- International: Users from Sweden (35 persons), Denmark (17 persons), Norway (2 persons), Germany (2 persons) and Finland, Italy and USA (one person from each country)





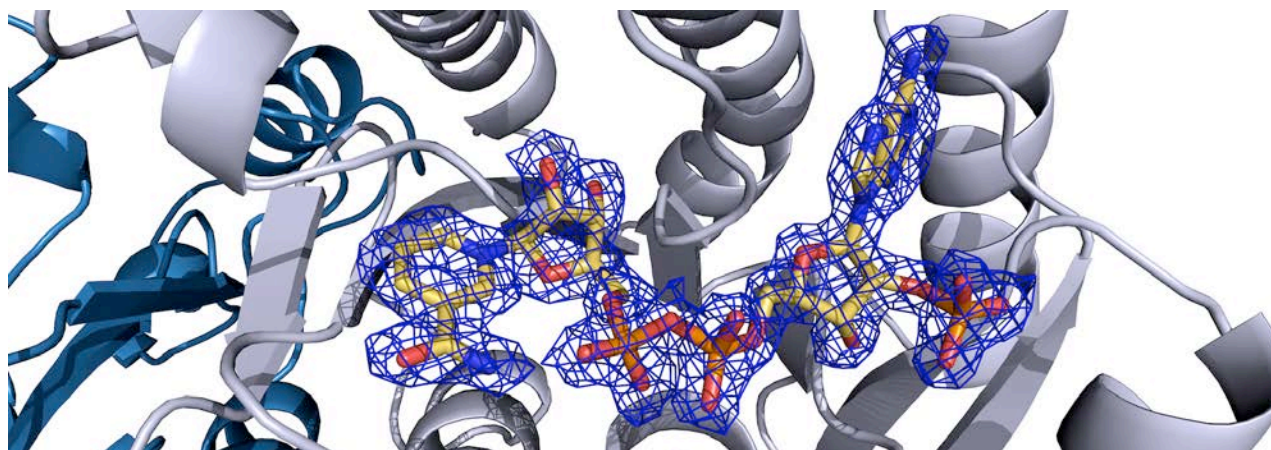
# Our process into user access at MAX IV

- 1) Beamline selected users
- 2) Commissioning Expert Call
- 3) Limited User Call
- 4) Regular User call
- 5) Widening proposal types



## New call for beamtime proposals

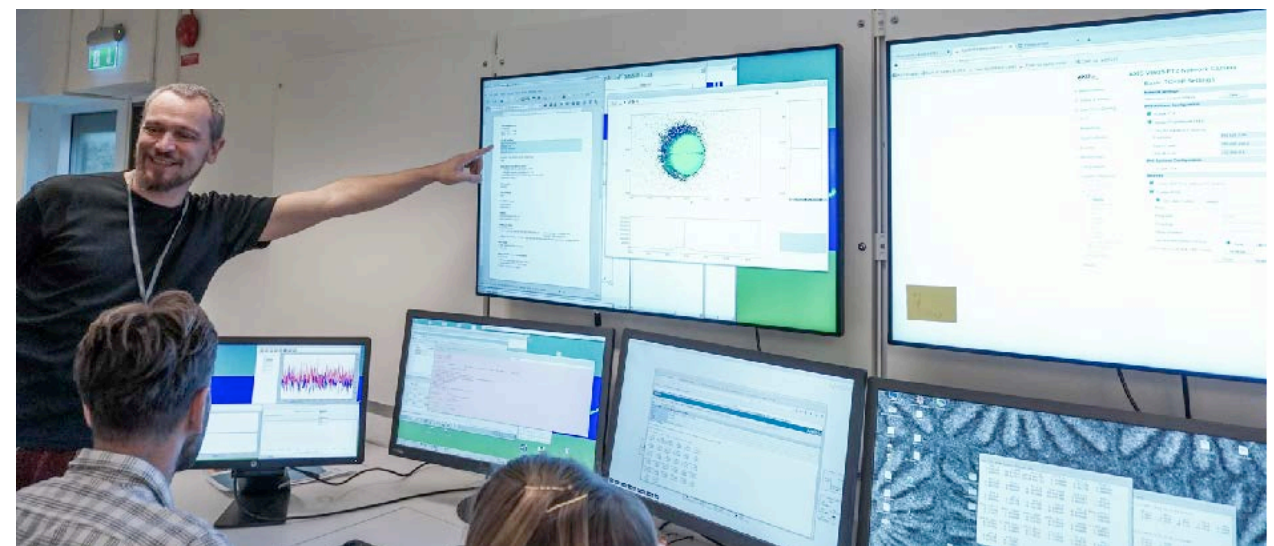
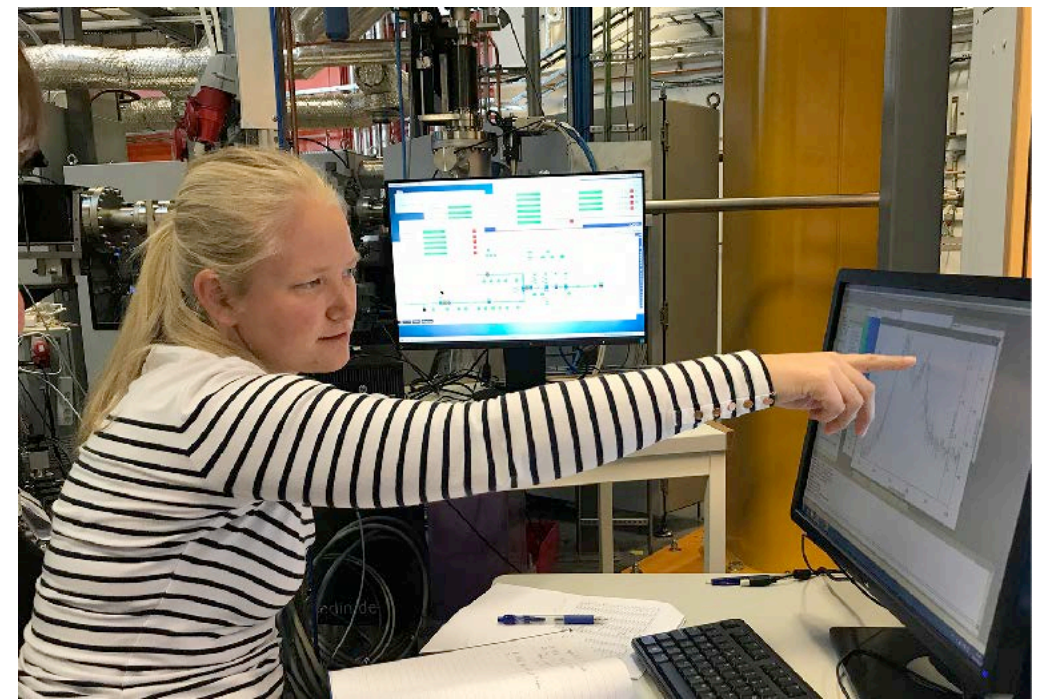
A call for user proposals will open on **August 7, 2017** and close on **September 7, 2017**. This call is for proposals requesting beamtime at the BioMAX, HIPPIE, and NanoMAX beamlines in the scientific areas Structural Biology, Spectroscopy, and Nano Sciences. Beamtime will be allocated from **December 2017 to July 2018**.





# Commissioning expert calls

- Important for development of the beam lines.
- Important for the development of the facility support systems such as UO, reception, safety and more.
- Call important for transparency of the process in which access is granted.
- Call is for expertise, not for science.
- Call is reviewed both internally and externally.



# Oversubscription & expectations

- Certain level of oversubscription is healthy.
- Too much oversubscription has to be managed
  - Transparency
  - Expectations
  - Communication
  - Realistic time planning
  - Waiting lists



# Different communities —> different needs

- Very wide spectrum of communities.
- Wide spectrum of different experiments & requirements.
- Very different levels of expertise and expectations.
- Space for development & collaboration.
- Need to cater to all these different aspects.
- Suite of proposals needed.

# Add more proposal types

Proposal types

Types	Rapid Access proposal	Feasibility Studies Proposal	Normal Proposal	Long Term Proposal	BAGs (Block Allocation Groups)	Extended support project
<b>Description</b>	Limited access for projects that require timely access.	Access requiring a small amount of beam time to test the feasibility of new ideas and experiments.	Single scientific projects that require single or repeat experiments.	Scientific projects requiring repeated access for experiments over a longer timeframe, e.g. projects developing new methods or specific hardware.	Large, well established groups requiring a significant amount of beam-time. Time is allocated for several projects with the flexibility that new projects can be added during the allocation period. Often related to standardized experiments with high sample through-put.	Novice users that lack expertise in a technology that require scientific and technical guidance for successful experiments. This can be during data collection as well as at data processing and analysis stages. Single scientific projects that require single or repeat experiments.
<b>Review</b>	Beamline scientist for technical review, a member of the external panel for scientific review.	Beamline scientist for technical review, a member of the external panel for scientific review.	Full review panel, Beamline scientist for technical review	Full review panel, Beamline scientist for technical review	Full review panel.	Beamline scientists for technical review; Full review panel, maybe with added external expertise.
<b>Scientific Review Criteria</b>	Quality of science, need for rapid access, feasibility.	Quality of science, novelty, need for feasibility testing	Quality of science, records of productivity, feasibility	Quality of science, novelty,	Quality of Science, Records of the quality of Science, Records of productivity	Quality of Science, need for added expertise and engagement, feasibility. Requires commitment from the users to fully acknowledge staff (i.e. authorship on resulting papers).
<b>Cycles</b>	Open proposal deadline, no dates set.	Open proposal deadline, no dates set.	½ year cycle, 1 In March for autumn term, one in September for spring term	1 year cycle, In September for following year. (or 2-year cycle with a yearly report)	1 year cycle, In September for following year. (or 2-year cycle with a yearly report)	½ year cycle, 1 In March for autumn term, one In September for spring term
<b>No of proposals</b>	Difficult to foresee	Difficult to foresee	Difficult to foresee	About 15 to 20 total	Limited; for MX about 15 to 20 total.	Limited number given access, as this depends on extra engagement of staff. If extended support is required for a project from a BAG group a separate proposal needs to be made.
<b>Success rate</b>	High		Difficult to foresee		High	"Lowish", only a limited number can be given time as it requires substantial efforts from staff.
<b>Shift allocation</b>	Limited time (1 to 3 shifts) shortly after proposal is reviewed (within a period of 6 weeks).	Limited time (1 to 3 shifts) shortly after proposal is reviewed (within a period of 6 weeks).	1 to 10 shifts	10 to 20 shifts	10 to 30 shifts	1 to 5 shifts
<b>Remote possibilities</b>	Yes	No	Yes	Maybe	Yes	No
<b>Size</b>	Single PI	Single PI & collaborators	Single PI & collaborators	Single PI & collaborators	A strong conglomeration of several PIs	Single PI

Assumption to start with: A 24-hour period is divided into 2 shifts, one 8-hour daytime shift and a 16-hour night time shift.



# Scheduling

- Not a single answer.
- Long experiments (>3 days), scheduled by beam line manager.
  - Dialogue with users.
  - Can be a cumbersome process.
- Short experiments (e.g. MX), flexible bookings driven by the users themselves.
  - Calendar to see bookings.
  - Requests with short notice.
  - Trend to even shorter visits on a very regular basis (rather 4 x 4hrs then 1 x 24).