



# The KATRIN Experiment

Joachim Wolf

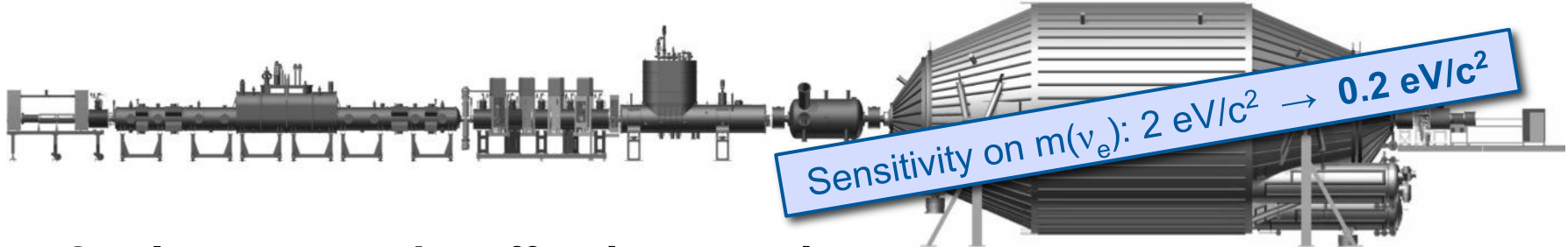
Institute of Experimental Particle Physics/ Institute of Astroparticle Physics

Maastricht, 02.02.2024

- **KATRIN Collaboration**
- **Structure of the KATRIN Collaboration**
- **Organizing of the work**
- **Rules and agreements**

# The **K**arlsruhe **T**Ritium **N**eutrino Experiment

KIT  
Karlsruhe Institute of Technology

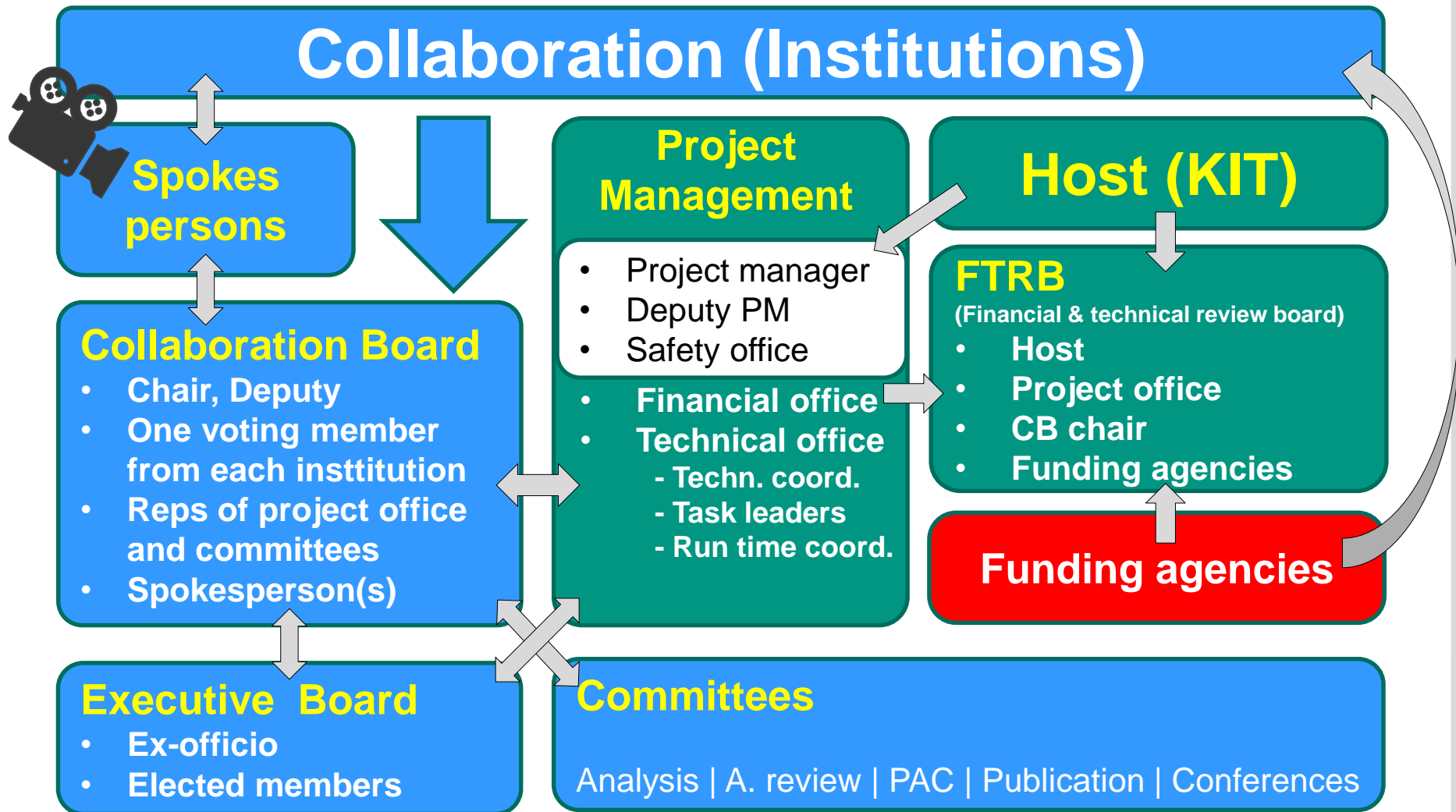


Sensitivity on  $m(\nu_e)$ :  $2 \text{ eV}c^2 \rightarrow 0.2 \text{ eV}c^2$

- **Goal: measure the effective neutrino mass**
- **International KATRIN collaboration:**
  - about 150+ members
  - 7+ countries (GER, US, CZ, ES, F, I, THA) (RUS)
  - 20+ institutions



# KATRIN Collaboration Structure



# KATRIN Collaboration Structure

## Collaboration (Institution)

### Overview of KATRIN committees (Wiki-page)

Overview of KATRIN committees

Committee	Chair	Co-chair or Deputy	Term	E-mail
KATRIN Collaboration	governed by the CB	represented by Co-SPs	-	<a href="mailto:katrin-all@lists.kit.edu">katrin-all@lists.kit.edu</a>
Collaboration Board (CB)	Ralph Engel (KIT - IAP)	Joseph Formaggio (MIT)	2 y	<a href="mailto:Katrin-CB@lists.kit.edu">Katrin-CB@lists.kit.edu</a>
Executive Board (EB)	John Wilkerson (UNC)	Christian Weinheimer (Münster)	2 y	<a href="mailto:Katrin-EB@lists.kit.edu">Katrin-EB@lists.kit.edu</a>
Program Advisory Committee (PAC)	Christian Weinheimer (Münster)	Diana Parno (CMU)	2 y	<a href="mailto:Katrin-PAC@lists.kit.edu">Katrin-PAC@lists.kit.edu</a>
Analysis Committee (AC)	Magnus Schlösser (KIT - TLK)	Alexey Lokhov (KIT - IAP)	2 y	<a href="mailto:Katrin-ana-coordination@lists.kit.edu">Katrin-ana-coordination@lists.kit.edu</a>
Analysis Review	Diana Parno (CMU)	Caroline Rodenbeck (KIT)	2 y	<a href="mailto:Katrin-Publication@lists.kit.edu">Katrin-Publication@lists.kit.edu</a>
Publication Committee (PC)	Alan Poon (LBNL)	NN	2 y	<a href="mailto:Co-Spokespersons">Co-Spokespersons</a>
Co-Spokespersons (Co-SP)	Kathrin Valerius (KIT - IAP)	Susanne Mertens (TUM)	2 y	<a href="mailto:Katrin-Speakers@lists.kit.edu">Katrin-Speakers@lists.kit.edu</a>
Speakers Bureau	Joseph Formaggio (MIT)	Thierry Lasserre (CEA)	2 y	<a href="mailto:Katrin-PM@lists.kit.edu">Katrin-PM@lists.kit.edu</a>
Project management (PM)	Guido Drexlin (KIT - ETP)	Markus Steidl (KIT - IAP)	appointed by KIT	<a href="mailto:Katrin-PM@lists.kit.edu">Katrin-PM@lists.kit.edu</a>
Finance and Technical Review Board (FTRB)	National funding agencies and host (KIT)	Reps of member institutions	ex-officio	<a href="mailto:Katrin-PM@lists.kit.edu">Katrin-PM@lists.kit.edu</a>

### Executive Board

- Ex-officio
- Elected members

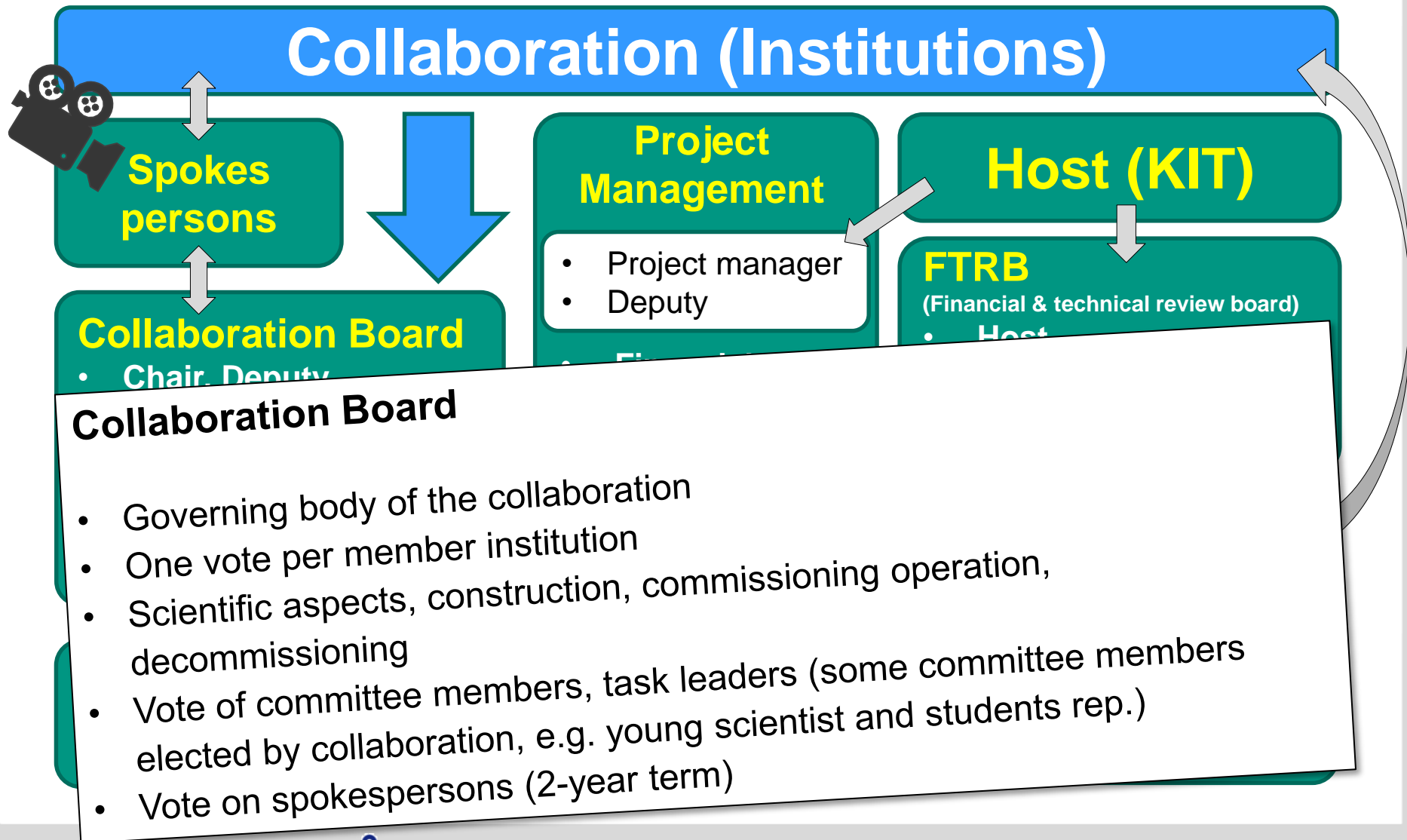
### Committees

Analysis | A. review | PAC | Publication | Conferences

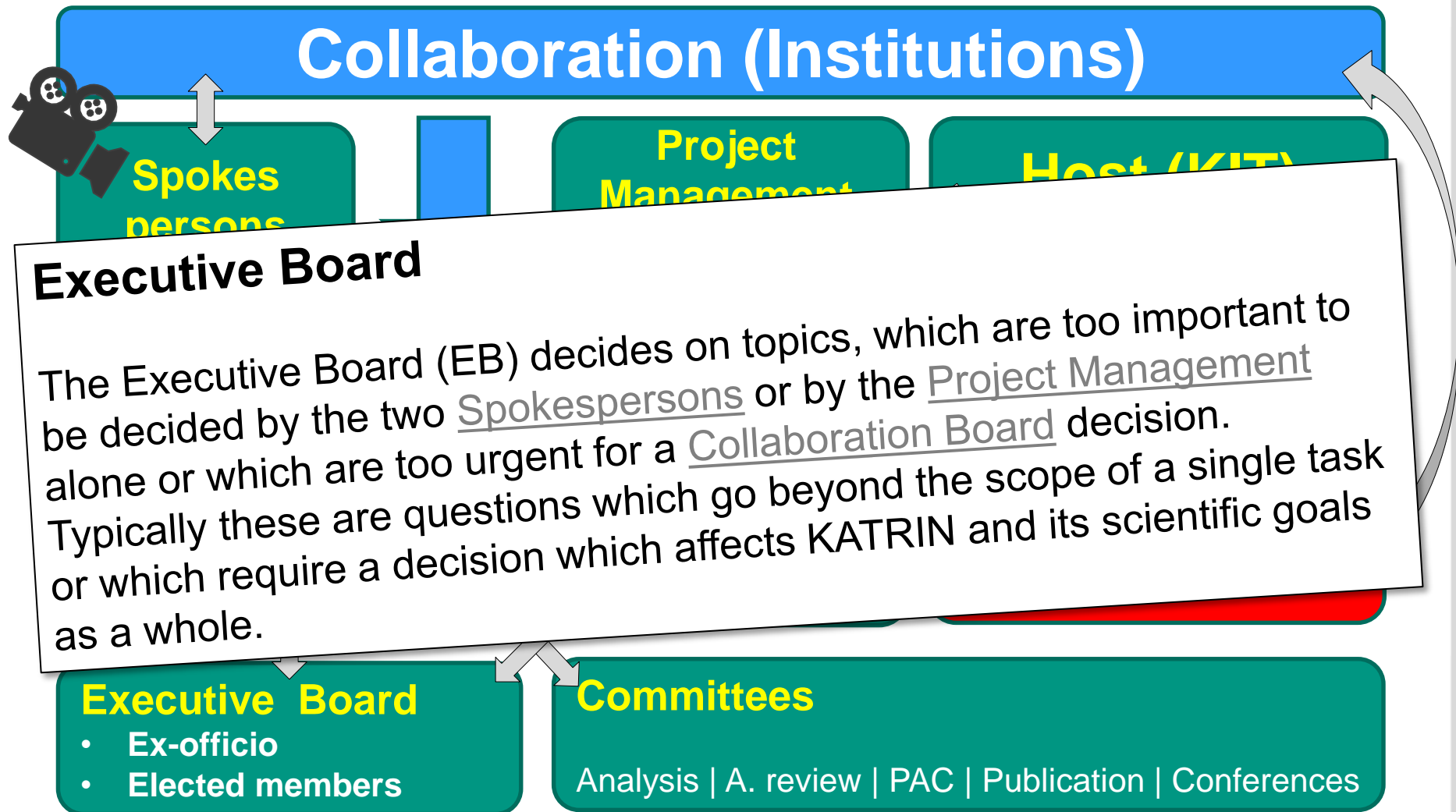




# KATRIN Collaboration Structure



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# Project Office



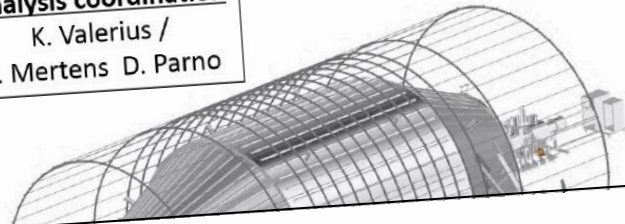
## KATRIN – Task structure

**KATRIN project coordination**  
M. Steidl

**KATRIN operation**  
R. Gumbsheimer / A. Jansen

**Analysis coordination**  
K. Valerius / S. Mertens D. Parno

**Runtime coordination**  
A. Jansen /



**Task structure adjusted to status of the experiment**

**External N**  
N

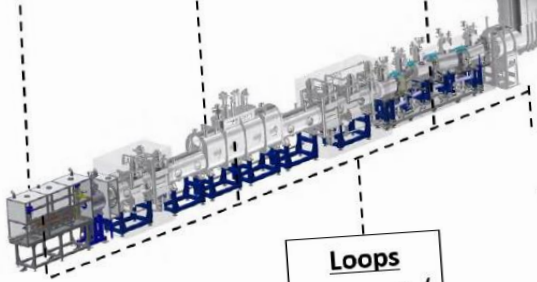
**Sources**  
D. Venos  
D. Evershe

## KATRIN task structure-II

**RS**  
L. La Cascio / K. Schlösser  
**illumination**  
K. Blaum, C.W.  
**E-gun**  
P. Ranitzsch

**DPS\***  
A. Jansen / M. Schrank

**CPS\***  
M. Steidl / W.S. Gil



**Detector**  
P. Doe  
F. Fränkle

**Tristan**  
S. Mertens

**ometers**  
V. Ha  
er / bein

**Loops**  
M. Sturm / F. Priester

**FBM, Kr-Source**  
K. Helbing  
V. Hannen  
**KIT coordination:**  
A. Jansen

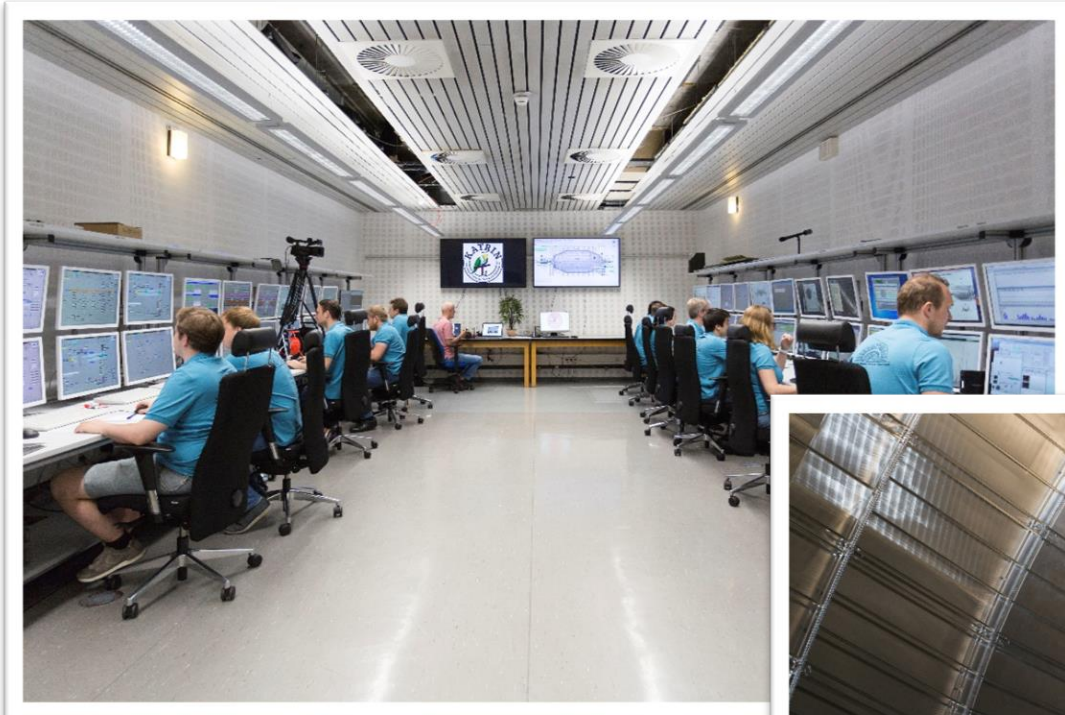
**DAQ**  
J. Wilkers  
A. Kopmann

\*subordinated in operational issues to Magnet, Cryo, Vacuum and Loops task (page 2)





# KATRIN: organizing the work





# KATRIN: organizing the work

## ■ Operation of the experiment:

- Regular **data runs** and specialized **systematics runs**
- **9 to 5 shifts** in control room (2 operators + specialists, if needed)
- **Remote shifts** checking hardware and data integrity
- Daily rounds with **web-based checklists** for main hardware

## ■ Special measurement requests

- **Duration < 1 day**: usually decided by **RTC** (run time coordinator)
- **Duration > 1 day**: decided in **PAC** meetings

## ■ Maintenance:

- **Regular maintenance intervals**
- **Documentation** in E-log (lab-book) and maintenance reports

## ■ Hardware changes

- **PMA**: Project modification announcement  
(reviewed and approved or rejected by project office)
- **Workflows**: describes every step of planned hardware work  
(reviewed and approved or rejected by project office)

# KATRIN: rules and agreements

## ■ Bylaws:

- Initial project organization (updated by CB)
- General rules defining the tasks of CB, spokespersons, etc.
- Publication policy: authorship, types of papers, internal review, ...
- Conference policy: internal reviews of data and slides
- Code of conduct

## ■ MoU (international cooperation agreement)

- Between host (KIT) and external partners
- Necessary before external partners can work on site
- Renewed about every 3 years
- Not always possible to have all legal dep. agree on one MoU

## ■ Other rules:

- Proposal of new measurements → PAC
- Proposal of hardware changes → PMA, workflows, reports

# Conclusions

## ■ Rules

- Some rules are important to enforce
- Some rules are helpful
- Some rules are required
- Some rules are



## ■ Most important rules:

- Communicate the rules and structures to everyone in the collaboration
- Make them easy to find for new members

