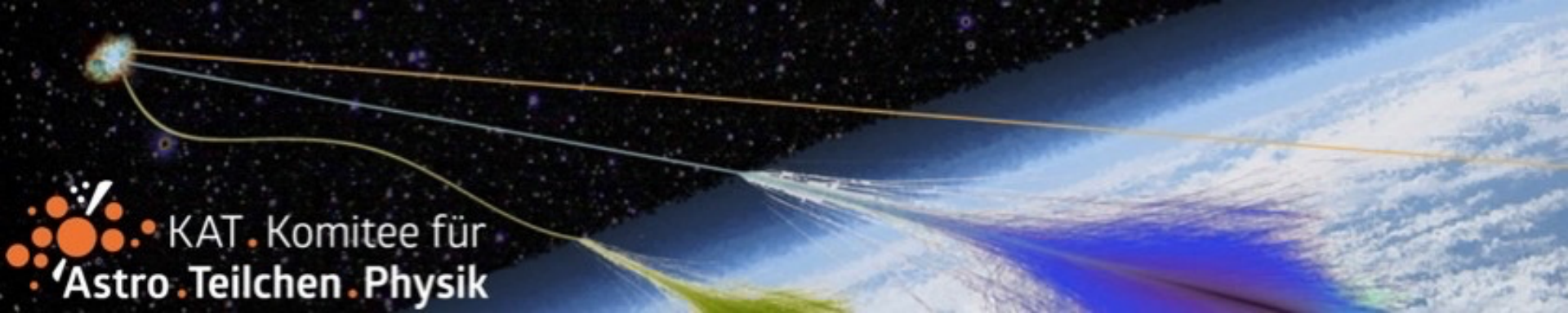


KHuK Annual Meeting, 7-8 Dec. 2023

Report from KAT

Kathrin Valerius
Karlsruhe Institute of Technology





 KAT . Komitee für
'Astro . Teilchen . Physik

News from KAT

Reminder: KAT composition

KAT members and deputies (2022-2025) for the nine topical constituencies:

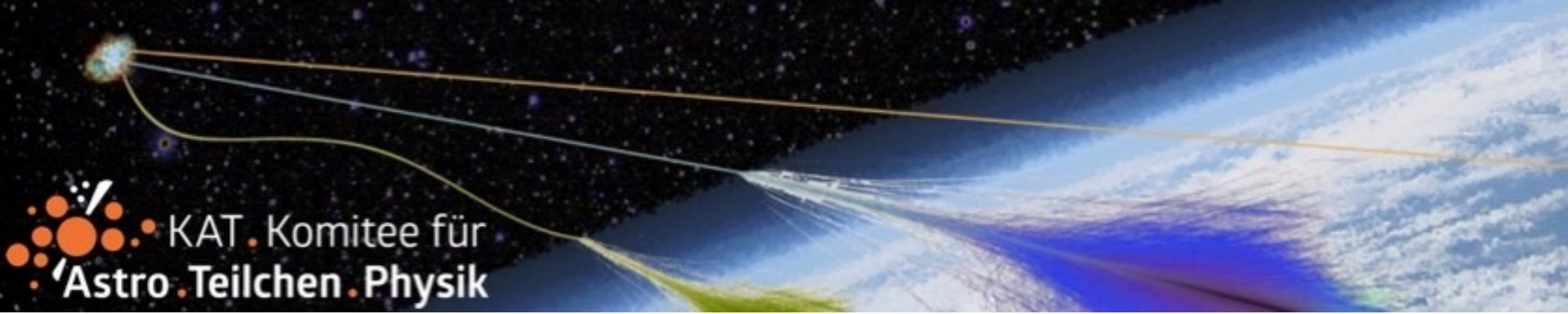
Constituency	Elected member	Deputy
Dark Matter	Manfred Lindner	Federica Petricca
Neutrino properties	Kathrin Valerius (Dep. Chair)	Stefan Schönert
Low-energy ν astrophysics	Achim Stahl	Michael Wurm
Cosmic rays	Markus Roth	Michael Schmelling
Gamma-ray astronomy	Stefan Funk	David Berge
High-energy ν astrophysics	Uli Katz (Chair)	Marek Kowalski
Nuclear astrophysics	Uwe Oberlack	Daniel Bemmerer
Gravitational waves	Michèle Heurs	Harald Lück
Theory	Walter Winter	Michael Klasen

Plus *ex-officio* members from other committees, in particular:

J. Haller (DPG FV Teilchenphysik), J. Wilms (RdS), W. Nörtershäuser (KHuK)

- Change in yHEP representatives:
Leonel Morejon (U Wuppertal) & Srijan Sehgal (U Wuppertal)
- New DZA liaison officer in KAT:
Michèle Heurs (U Hannover)
- KAT envoy to KHuK:
Kathrin Valerius (KIT) → Daniel Bemmerer (HZDR) deputy envoy:
Uwe Oberlack (U Mainz)





Strategy process 2023/24

Current status:

- KAT has a working paper for 3-year period, adapted to and updated for the ErUM-Pro funding cycles, but no long-term strategy covering ~10 years
- RdS has a 10-year „Denkschrift“ which needs an update
- DZA should be included in long-term strategy for both RdS & KAT

Plan:

- Prepare two separate documents (closely coordinated) which are suitable for dissemination to policy makers & stakeholders
- Ideally, these should be released back-to-back

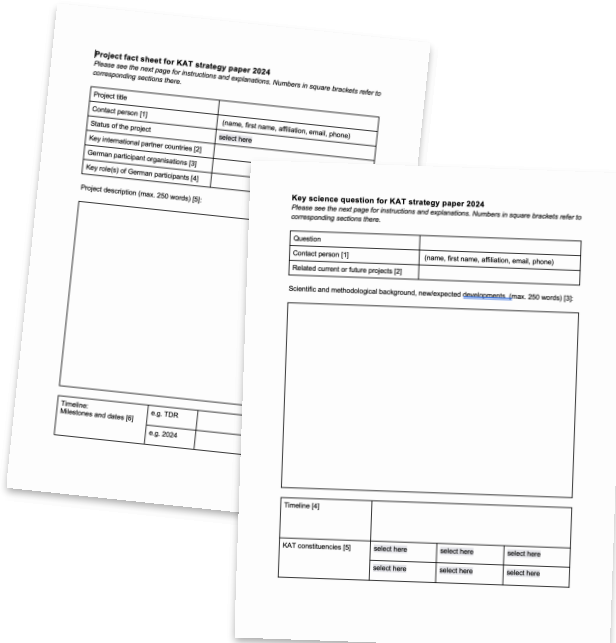
Tentative (ambitious) timeline:

- Draft in spring/summer, release by end of 2024 (e.g. presentation at the next Annual Meeting)
- Prepare both German and English version



Present status: bottom-up collection of inputs

- **Project fact sheets** to describe ongoing projects and future projects/project ideas
- **Key science questions** to document what are our driving science objectives
- ~60 submissions received so far
→ discussed at Annual KAT Meeting 2023
- A nice picture of Astroparticle Physics in Germany is emerging — collection ongoing



Project fact sheet for KAT strategy paper 2024
Please see the next page for instructions and explanations. Numbers in square brackets refer to corresponding sections there.

Project title	
Contact person [1]	(name, first name, affiliation, email, phone)
Status of the project	select here
Key international partner countries [2]	
German participant organisations [3]	
Key roles(s) of German participants [4]	
Project description (max. 250 words) [5]	
Timeline: Missions and dates [6]	e.g. TDR e.g. 2024

Key science question for KAT strategy paper 2024
Please see the next page for instructions and explanations. Numbers in square brackets refer to corresponding sections there.

Question	
Contact person [1]	(name, first name, affiliation, email, phone)
Related current or future projects [2]	
Scientific and methodological background, new/respected breakthroughs (max. 250 words) [3]	
Timeline [4]	
KAT constituencies [5]	select here select here select here select here select here select here

(Some) open questions:

- Prioritization of large-scale projects?
- Need to discuss how/whether to include projects like DUNE or ESS ν beam.
- How will cooperation with neighbouring fields develop? Will researchers be able to move between fields? → neutrinos, axions, astronomy, GWs, ...

Next steps: initiate coordination board and writing groups; implement RdS connection and link to DZA; KAT community meeting (spring/summer 2024)

The four big astroparticle projects

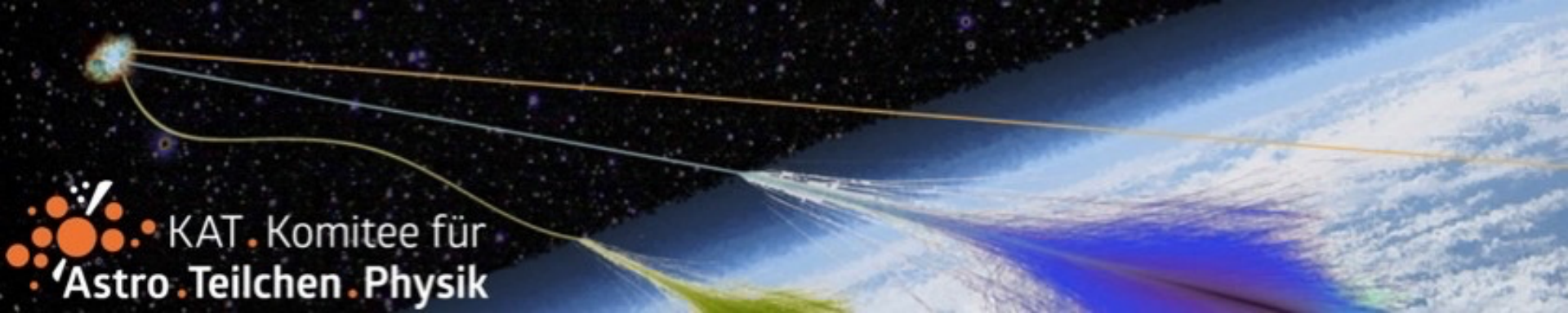
- **DARWIN/XLZD:** DM and more
 - Sensitivity down to neutrino fog
 - Invest: 45 M€ detector + 135 M€ Xenon
 - Expected German contribution **45 M€**
- **IceCube-Gen2:** Cosmic neutrinos and more
 - Unique discovery potential
 - 500 M\$ (US accounting), ~150 M\$ invest
 - Project strongly depends on NSF funding
 - Expected German contribution **40 M€** in-kind
- **LEGEND-1000:** $0\nu\beta\beta$
 - Prioritised over other $0\nu\beta\beta$ projects by DOE
 - Likely hosted by LNGS
 - Expected German contribution: **25 M€**
- **Einstein Telescope:** Gravitational waves
 - Overall invest 1.7 B€
 - Site as yet undecided
 - German contribution site-dependent, **~450 M€ ?**

National roadmap process for RIs will be re-opened, now as a **prioritization process**
— threshold still unclear

General topics / overarching questions:

- Multi-messenger studies
 - Include RdS and KAT
 - MM workshop planned for March 2024 in Görlitz
(discuss science, strategy, cooperation, funding opportunities, ...)
- Theory
- Data management, software, and computing
- Knowledge transfer
- Sustainability
- Diversity and early-career support
- Ethics
- ...

Procedures and cross-coordination
with RdS to be set up



**Developments:
DZA, ErUM-Data ...**

DZA Team and network



© DESY

Aktuelle Stellenausschreibungen des DZA

Donnerstag, 23. November 2023

Das DZA-Team möchte wachsen. Mit Beginn des Jahres 2023 hat eine dreijährige Aufbauphase begonnen mit dem Ziel, das DZA als eigenständige Institution im Jahre 2025 gegründet zu haben.



- 12 persons forming Steering Group of DZA in the pre-founding phase
- Innovative governance model (under discussion: gGmbH with federal government and Free State of Saxony as co-owners, plus independent supervisory board)

From Michèle Heurs

Key pilot projects and academic appointments (2023-2025)

Projects

- Purchasing 2 additional **Meerkat+ antennas** as in-kind contribution towards Meerkat+ and later SKAO and development of the African VLBI leg. **Telescope control station in Görlitz with OHB.**
- **Data sciences at TU Dresden**, focusing on large (<1 PB) data objects and real-time algorithms for noise suppression and data compression.
- **Cryogenic silicon mirrors** and high reflectivity coatings for the Einstein Telescope.
- Development of **fast NIR array detectors**, possibly from organic materials and characterisation of CMOS detectors for astronomy

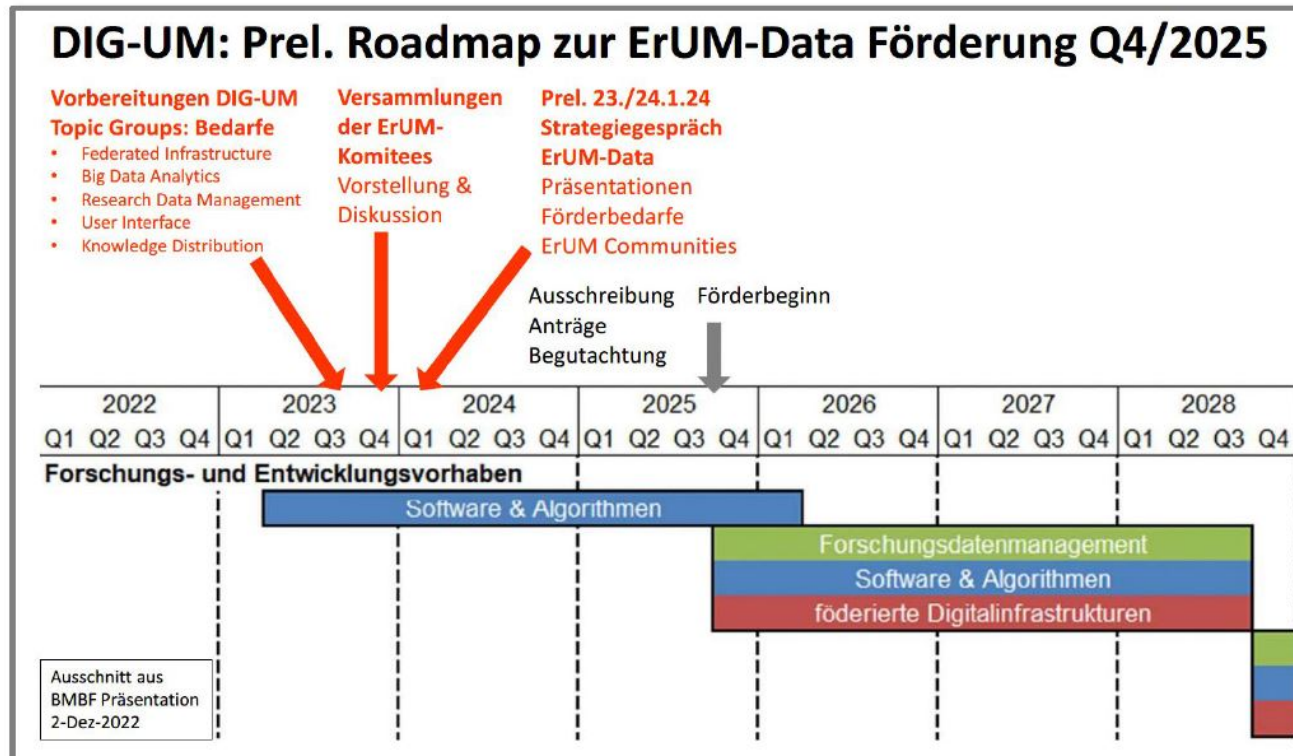
Academic Appointments at TU Dresden and creation of a technical astrophysics master program

- Three astrophysics professorships (radio astronomy, cosmology, astro technology)
- One informatics and data science professorship
- One data intensive microelectronics/sensoric professorship

- Possibly one additional astrophysics professor jointly appointed with Univ. Wroclav (and Prague?)

From Michèle Heurs

Preparation of next funding round



From: M. Erdmann, DIG-UM

- „classical“ BMBF strategy discussion with the community for input to the call in Jan 2024
- Presentations of Topic Groups with input from Communities (e.g. KAT!)
- Invitation to the meeting also for PUNCH4NFDI and DAPHNE

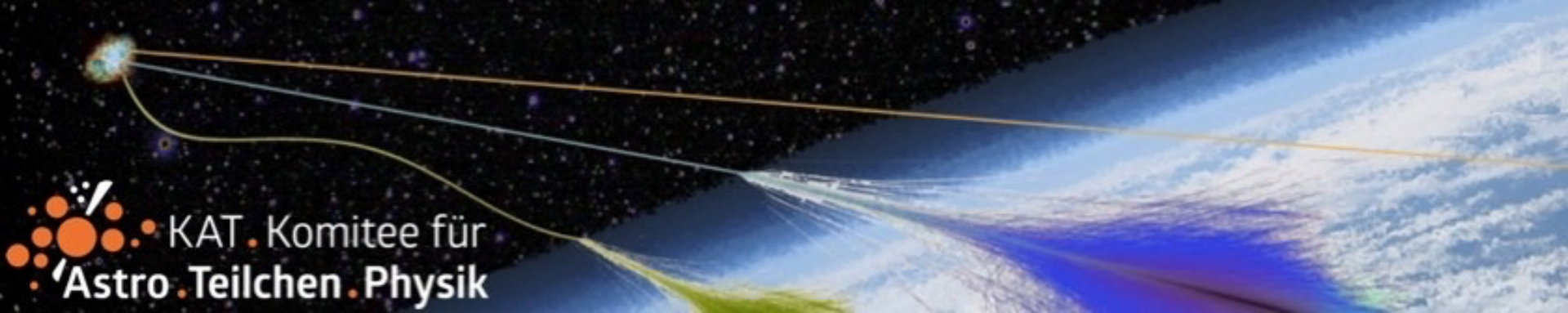
From Andreas Haungs

KAT in the ErUM-Data Strategy Discussion

- **Strategy Meeting will happen on 23+24 January 2024**
 - **Call for projects probably end 2024 / begin 2025**
 - **Already known: projects should be community overarching, and industry involvement is welcome --- to which amount is subject of discussion**
- **Main input for the strategy meeting is by the DIG-UM Topical Groups**
 - **Topic Groups: Federated Infrastructures; Big Data Analytics; Research Data Management; User Interface; Knowledge Distribution**
 - **Via the communities (KAT, KET, KHuK, RDS, etc. [and NFDI: PUNCH & DAPHNE])**
- **Call will be for 3 areas:**
 - **Software and Algorithms (round 2)**
 - **Research Data Management (for the first time)**
 - **Federated Digital Infrastructures (experience from pilot project?)**

Ideas for joint proposals from KHuK+KAT?

From Andreas Haungs



Upcoming events

Date: Thu, 30 Nov 2023 00:06:21 +0100
From: Stefan Wagner <swagner@lsw.uni-heidelberg.de>
To: "ASTROTEILCHEN-GEMEINSCHAFT@LISTSERV.DFN.DE"
<ASTROTEILCHEN-GEMEINSCHAFT@LISTSERV.DFN.DE>
Subject: Save the date: Multimessenger Workshop March 26 and 27, 2024 in Görlitz

Dear colleagues,

the 'Deutsches Zentrum für Astrophysik (DZA)' together with the 'Rat deutscher Sternwarten (RdS)' and 'Komitee für Astroteilchenphysik (KAT)' will host a workshop on multimessenger-astrophysics in Görlitz during March 26 and 27, 2024.

The workshop will review the current status of multimessenger astrophysics, concentrating on projects with significant contributions from the RdS and KAT communities and advance discussions on medium-term and long-term perspectives and opportunities.

The workshop will be hosted in Görlitz, home of the new DZA. Further information will be communicated shortly.

Best regards,

G. Hasinger, U. Katz, M. Kramer, K. Valerius, S. Walch-Gassner, S. Wagner (SOC)
K. Henjes-Kunst (LOC, Chair)

- This year : Only particle physics division
- Schedule a bit more relaxed than in previous years
- Plenary / invited / invited topical talks have been decided, invitations have been sent or will be sent soon
- Symposium „Future“ (with ET/LISA presentation)
- Good share of astroparticle presentations

#DPGKA24

Deadline für Abstract-Einreichung: 15.12.2023



Örtlicher Tagungsleiter:

Prof. Dr. Ulrich Husemann
Karlsruher Institut für Technologie
Institut für Experimentelle Teilchenphysik
Hermann-von-Helmholtz-Platz 1
76344 Eggenstein-Leopoldshafen

Tagungsort:

Karlsruher Institut für Technologie
Campus Süd
Kaiserstr. 12
76131 Karlsruhe

karlsruhe24.dpg-tagungen.de

Thank you
and all the best for 2024!

