

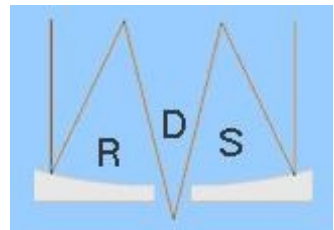
# Introduction

Multi-messenger and multi-frequency astrophysics

A joint DZA – KAT – RdS workshop

Görlitz, March 26 – 27, 2024

SOC: G. Hasinger, U. Katz, M. Kramer, S. Wagner, S. Walch-Gassner, W. Winter



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The purpose of the meeting is manifold:

Introducing DZA in Görlitz to the German (particle-) astrophysics communities

Review current highlights and cooperation (options) in mm & mwl astrophysics

Discuss future challenges and opportunities (instruments, methods, goals)

Strategic planning for the longer-term future (~3 – 15 years)

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DZA opened interim HQ and technology centre in Jan and Feb 2024

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A very hot topic: Even this week there are (>) two meetings with similar themes

Discuss future challenges and opportunities (instruments, methods, goals)

Synergetic approach is sought globally

Strategic planning for the longer-term future (~3 – 15 years)

DZA science vision, RdS Denkschrift (→ Astronet) , KAT strategy (→ APPEC)

# Introduction

arXiv 2401.02063

## Windows on the Universe

Establishing the Infrastructure for a Collaborative Multi-messenger Ecosystem

October 16 – 18, 2023  
Tucson, AZ

Introducing DZA

DZA opens

Review current h

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Review of

astrophysics

**DZA shall become a focus point for (particle-) astrophysics in Germany and invites the communities for meetings & visits.**

**DZA ramps up gradually but starts to recruit and build-up.**

**Consider DZA in Görlitz as a future employer**

**Consider cooperation, staying as a visiting scientist**



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**What is multi-messenger astrophysics?**

**Anything but e.m.? Any combination of more than one messenger? Where?**

**Spatial-temporal correspondence?**

**Cross-fertilization (cosmology, nuclear astrophysics). No definition anticipated.**

**mwl is an established acronym.**

Introducing DZA in Görlitz to the German astronomical communities

**Review current highlights and cooperation (options) in mm & mwl astrophysics**

**Many opportunities have emerged recently or will open-up in the near-term future. Hard to keep track. Many have a specific aim but provide a broad range of data products serving other purposes.**

**→ Think across boundaries**

**→ How can our communities facilitate cooperation?**

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**Challenges being scientific questions that require new approaches.**

**Once the solutions are being implemented (e.g. new facilities), these give rise to new challenges (instrumentation, data analysis) that are not the scope here.**

**However: the former challenges are very often not (only) countered by new hardware but by understanding physical processes better**

**(pointing to other channels of information), by appropriate combination of multi-channel information (statistics) or by**

**Review can 'simply' understanding better how to retrieve existing astrophysics information.**

**Discuss future challenges and opportunities (instruments, methods, goals)**

Strategic planning for the longer-term future (~3 – 15 years)

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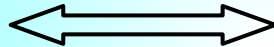
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Review cur

astrophysics

**Discuss future challenges and opportunities (instruments, methods, goals)**

**Goals  
Instruments  
Methods**



Deutsches Zentrum für Astrophysik

Forschung. Technologie. Digitalisierung.

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**Very specific purpose:**

**Given the importance and actuality of multi-channel astrophysics the (particle-) astrophysics communities consider proposing a DFG priority project (DFG – Schwerpunktprogramm).  
→ Wednesday afternoon (but to be kept in-mind throughout)**

- Introducing DZA into the particle astrophysics communities
- Review current highlights and cooperation (options) in mm & mwl astrophysics
- Discuss future challenges and opportunities (instruments, methods, goals)

**Strategic planning for the longer-term future (~3 – 15 years)**

**DZA strategy**

**RdS & KAT strategies**

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# Technical Introduction

The program reflects the intention with about  $\frac{1}{2}$  day on each of the four aims.

The broad & multi-parameter nature (& constraints)  
do not facilitate an obvious linear sequence in talks.

Much interest in talks and apologies to all those whose proposals did not fit in.

Emphasis on discussions (heterogeneous audience).

→ Emphasis on in-person attendance.

We open a videocon-link (listen & chat) to the meeting.

We request speakers to upload talks (on indico) and/or send/hand them to LOC.

Contributions to discussions: Pls. state name/affiliation/field first time you speak.

Program has been handed out, potential changes will be updated on indico

# Technical Introduction

Breaks and dinner (in house) as listed.

Questions on transport/child-care/how-to, where-to, when-to, ...:

Please consult our LOC members: Katharina Henjes-Kunst,  
Marina Grodd, Hardy Drube, Maria Haupt, Jacqueline Mosebach, Stefan Ohm,  
(Blue markers)

Program ends on Wednesday evening. Many stay until Thursday.

Self-arrange dinner (in groups?) here or downtown Wednesday  
(but feel invited to announce and/or enquire about options).

→ Staying on Thursday? → Visit Görlitz and surroundings

# Discussions

Agenda

# Program

## Today:

~ 17:00 Plenary Discussion

~ 17:30 World Cafē: 4 topics (possibly modified by plenary discussion)

\* Theory

\* Analysis/operations Methods

\* Instruments/infrastructures

\* Science themes

## Tomorrow:

~ 11:30 Panel discussion

~ 15:00 Priority Program Strategies