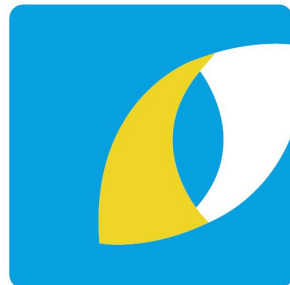


CNRS Helmholtz Dark Matter Lab (DMLab)



Thomas Schörner (DESY) and Dirk Zerwas (DMLab)

5th Annual Meeting of DMLab
October 21-22, 2026

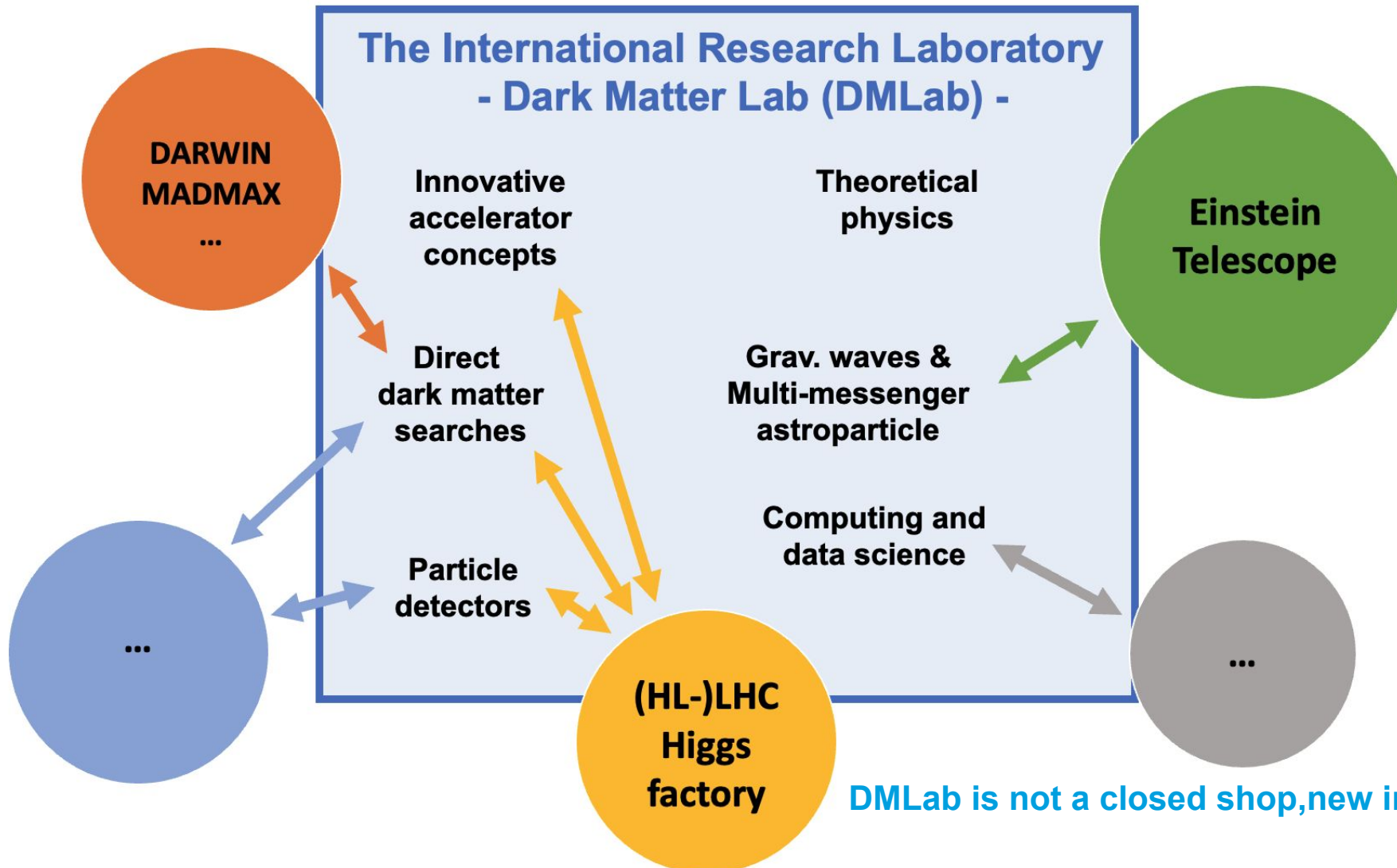


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Scientific Topics of DMLab

Organized around the central theme of dark matter



IRL goal:

- develop new ideas
- across topic boundaries
- glued by dark matter

Charge to the lab:

1. **Personnel at DESY, KIT and GSI**
 - a. F: affectation
 - b. D: sabbatical
2. **Working visits** (typically 1-2 weeks) to DESY, KIT, GSI
3. **Workshops** broad and narrow
4. **Funding** acquisition
5. **Develop** French-German collaboration

DMLab is not a closed shop, new initiatives are always welcome!

Scientific Projects of DMLab

Organized by topic

Topic	Project	PI France	PI Germany
Direct Searches	XLZD	Julien Masbou (Subatech)	Klaus Eitel (KIT)
	MadMax	Fabrice Hubaut (CPPM)	Axel Lindner (DESY)
GW and MM Astroparticles			
Accelerators	Laser-plasma acceleration of Electrons	Nicolas Delerue (IJCLab)	Matthias Fuchs (KIT)
	Laser-plasma acceleration of Hadrons	Medhi Tarisien (LP2i)	Vincent Bagnoud (GSI)
Computing and ML	Precision and Machine Learning	David Rousseau (IJCLab)	Margarete Mühlleitner (KIT)
Particle Detectors	Tracking Detectors	Marc Winter (IJCLab)	Ingrid-Maria Gregor (DESY)
	CBM-MVD	Auguste Besson (IPHC)	Michael Deveau (GSI)
	Calorimeters	Roman Poeschl (IJCLab)	Katja Krueger (DESY)
Theory	Dark Matter beyond the WIMP paradigm	Adam Falkowski (IJCLab)	Geraldine Servant (DESY)
	BSM Gravity Cosmology	Giacomo Cacciapaglia (LPTHE)	Thomas Konstandin (DESY)
	Strangeness in Nuclear Matter	Joerg Aichelin (Subatech)	Elena Bratkovskaya (GSI)
	FIPs	Luc Darme (IP2I)	Felix Kahlhöfer (KIT)

Publications

Cumulative

- Contribution to “Data Preservation in High Energy Physics: Global Report 2026”, [2607.06775](#) [hep-ex]
- Configuration and Benchmarking of e+e− Processes with K4GeneratorsConfig, e-Print: [2509.20116](#) [hep-ph]
- ECFA Higgs, electroweak, and top Factory Study, e-Print: [2506.15390](#) [hep-ex], CERN Yellow Report 2025-005.
- The ILD Detector: A Versatile Detector for an Electron-Positron Collider at Energies up to 1 TeV, e-Print: [2506.06030](#) [hep-ex]
- Enhancing European Cooperation in the Search for Dark Matter, e-Print: [2504.01688](#) [hep-ex]
- The Critical Importance of Software for HEP, e-Print: [2504.01050](#) [hep-ex]
- The Linear Collider Facility (LCF) at CERN, e-Print: [2503.24049](#) [hep-ex]
- A Linear Collider Vision for the Future of Particle Physics, e-Print: [2503.19983](#) [hep-ex]
- A proposal for the Lohengrin experiment to search for dark sector particles at the ELSA Accelerator, e-Print: [2410.10956](#) [hep-ex] **Eur.Phys.J.C 85 (2025) 5, 600**
- Focus topics for the ECFA study on Higgs / Top / EW factories, e-Print: [2308.00515](#) [hep-ex]
- Technical Design Report for the LUXE Experiment, e-Print: [2308.00515](#) [hep-ex], **Eur.Phys.J.ST (2024)**
- SuSpect3: A C++ code for the supersymmetric and Higgs particle spectrum of the MSSM, e-Print: [2211.16956](#) [hep-ph], **Comput.Phys.Commun. 291 (2023) 108805**
- The Higgs boson mass as fundamental parameter of the minimal supersymmetric standard model, e-Print: [2202.06919](#) [hep-ph], **Eur.Phys.J.C 82 (2022) 7, 657**

Acknowledgements

Cumulative

- A.W. Romero Jorge, E. Bratkovskaya, T. Song, L. Sagunski, [Constraints on Kinetic Mixing of Dark Photons from Dilepton Spectra](#), arXiv:2507.11163
- Adrian William Romero Jorge, Elena Bratkovskaya, Laura Sagunski [Search for dark photons in heavy-ion collisions](#) arXiv:2409.20141

Other Activities

Third-party funding etc.

DMInfraNet: Input on DM collaboration to the ESPPU 2026

Enhancing European Cooperation in the Search for Dark Matter

Bernard Andrieu¹, Ties Behnke², Philip Bechtle³, Xavier Bertou⁴, Jose Busto⁵, Susana Cebrián⁶, Marco Cirelli⁷, Javier De Miguel⁸, Laurent Derome⁹, Cristinel Diaconu⁵, Caterina Doglioni¹⁰, Guilianna Fiorillo¹¹, Davide Franco¹², Juan Fuster¹³, Romain Gaior¹, Erika Garutti¹⁴, Claudio Gatti¹⁵, B. Gimeno-Martinez¹³, Frédéric Girard¹, Roxanne Guenette¹⁶, Matthias Hamer³, Sophie Henrot-Versillé⁴, Thibaut Houdy⁴, Fabrice Hubaut⁵, Adrian Irles¹³, Yoann Kermaidic⁴, Marcin Kuźniak¹⁷, Axel Lindner², Julien Masbou¹⁸, Giovanni Mazzitelli¹⁵, Akira Miyasaki⁴, Enrique Minaya⁴, Konstantinos Nikolopoulos^{14,19}, Federica Petricca²⁰, Roman Pöschl⁴, Pascal Pralavorio⁵, Florian Reindl^{21*}, Leszek Roszkowski^{17,27}, Daniel Santos⁸, Jochen Schieck^{21,22*}, Thomas Schörner^{2,23*}, Silvia Scorza⁸, Luca Scotto Lavina¹, Steinar Stapnes²⁴, Achille Stocchi⁴, Maxim Titov²⁵, Julia K. Vogel²⁶, Masayuki Wada¹⁷, Jonathan Wilson⁴, Yajing Xing¹ and Dirk Zerwas^{23*}

- Huge variety of DM candidates, experimental approaches and technologies
- Idea: Creation of a supportive network for the exchange of technology-related expertise and to facilitate access to the infrastructure for dark matter research, building on existing activities and supplement those that were previously missing
- help community to speak with one voice & prepare grounds for joint (funding) activities
- Guinea pig activity: providing a common data management framework

DIME - Data Management and Analysis for Invisible Matter Experiments (2025)

Proposal to DFG-ANR 2025; currently being updated: LPNHE, PSC, IJCLab, DMLab, Bonn, Siegen, Munich, DESY

2023 ANR-DFG: CALO5D (detector development):

- ANR:
 - 500K
 - 2PostDocs, 1PhD
 - IJCLab and LLR
- Germany:
 - 500K
 - 2 positions, upgraded to PostDoc by own funds
 - DESY, KIT, University of Mainz

2024 ANR-DFG: HALOX (Direct Searches):

- ANR:
 - 300K
 - 1 PostDoc
 - CPPM
- Germany:
 - 475K
 - 2 PhD
 - UHH and DESY

DMLab: Information

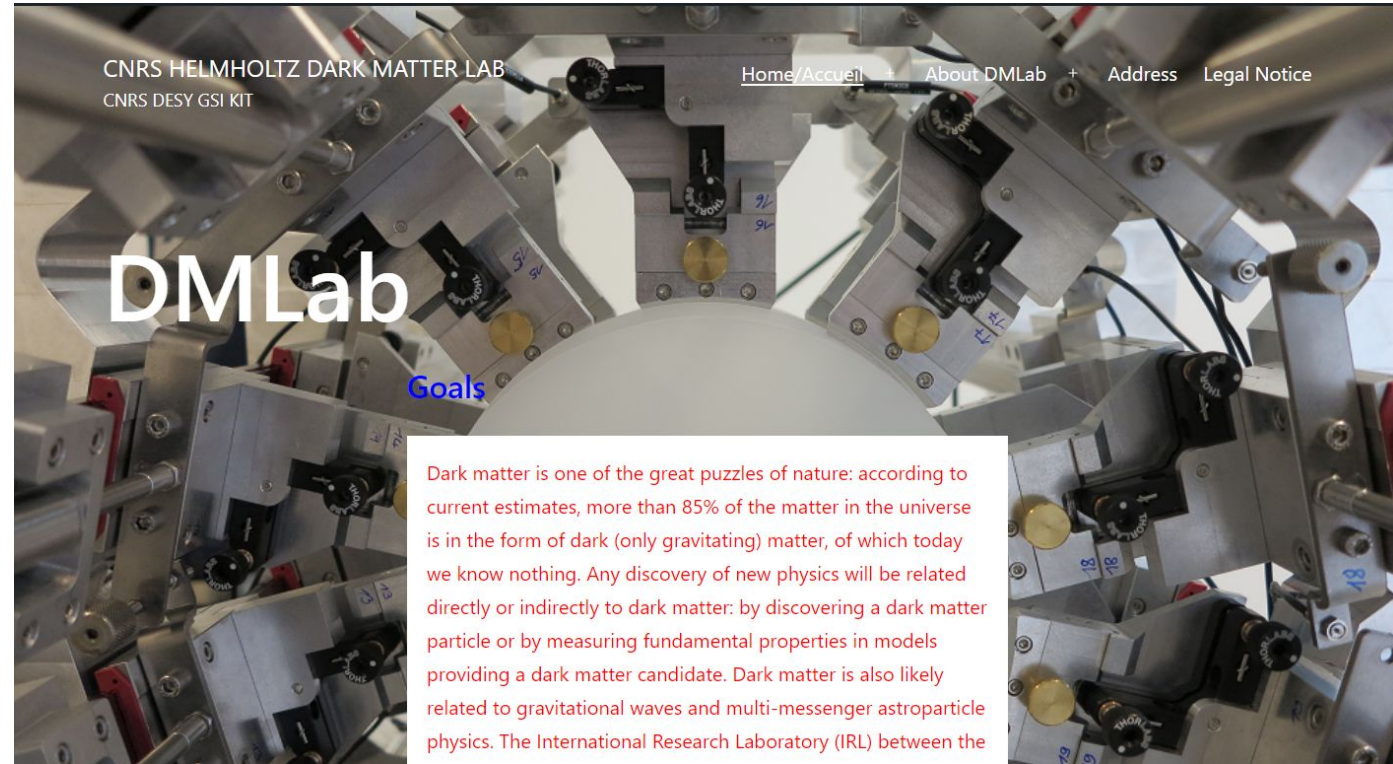
Infrastructure

- Open mailing list: dmlab-general@desy.de (send Thomas or Dirk an email to register)
- Web page:
 - <http://dmlab.in2p3.fr>
- Thank you to the UFA-DFH for their support



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- We are grateful to the LPNHE, its director Marco Zito and our main organizer Luca Scotto-Lavina and Christine Marquet (GDR DUPhy) as well as Hotel Lodge In for hosting us!



We wish us a fruitful meeting!