

iDMEu

initiative for Dark Matter in Europe and Beyond

@ TAUP
VIENNA 2023

The iDMEu EOI current organizers:

[Marco Cirelli](#)
[Caterina Doglioni](#)
[Federica Petricca](#)
[Gabrijela Zaharijas](#)

Why an Initiative for Dark Matter (in Europe and beyond)?



XVIII International Conference on Topics in Astroparticle and Underground Physics (TAUP 2023)

28 August 2023 to 1 September 2023
University of Vienna
Europe/Vienna timezone

Overview

Important information

Scientific Programme

Call for Abstracts

Timetable

Search

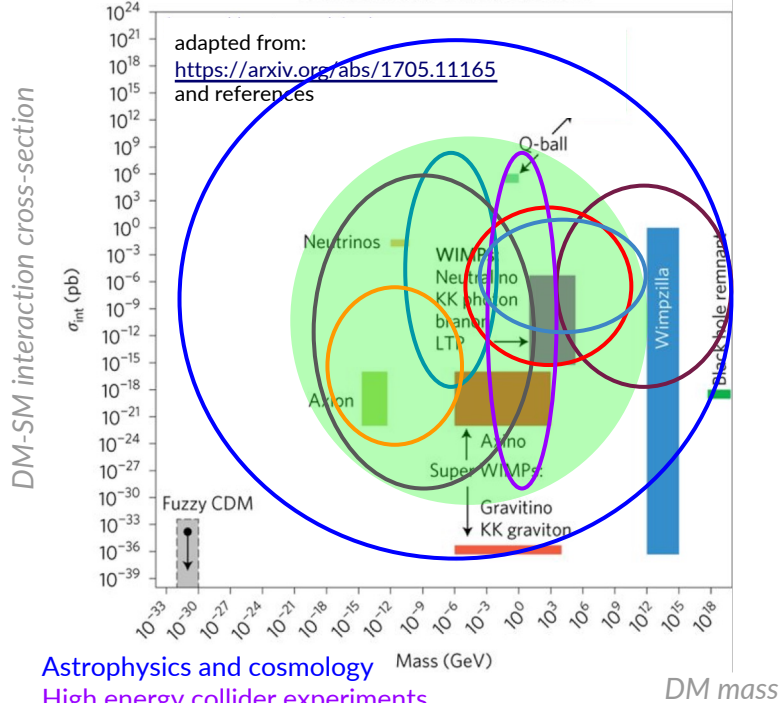
dark matter



Contributions (191)

Materials (6)

Why an Initiative for Dark Matter (in Europe and beyond)?



Astrophysics and cosmology

High energy collider experiments

Axion/ALP experiments

Neutrino experiments

Indirect detection experiments

Direct detection experiments

Accelerator (fixed target/beam dump) experiments

Gravitational wave experiments

(Not an inclusive list, and sensitivity contours exclusively for illustration)


Some DM searches and probes are fairly **mature**:
(e.g. direct and indirect detection, colliders...)
need to develop **mutual understanding** towards **common discovery/constraints** on DM

Other DM searches and probes are **more recent**:
(e.g. gravitational waves, quantum sensors...)
need to develop **connections** with other searches & probes
for a **fully complementary picture**

The best region to find dark matter is the one where more techniques and ideas can **discover** and **explore** DM!

How did iDMEu come to be?



- In October 2019, the proponents participated in the [first JENAS meeting](#) 
- Proponents had a **common shared interest** in dark matter, coming from **different communities**
 - Astroparticle / indirect detection / theory
 - High-energy colliders
 - LHCb and experiments at extracted beam lines
 - Direct detection / experiment
 - Neutrino / theory
 - Gravitational waves community
- In talking to each other, we realised that we all have similar questions:
 - E.g. *“what are your assumptions?” “why do you use this technique?” “how will findings in your DM research impact my DM research?” “where can we meet and discuss this topic in depth after JENAS?”*
- We realized **our scientific worlds weren't communicating enough**
- We decided to submit a [JENAA Expression of Interest](#)

iDMEu proponents

Elena Cuoco
Marco Cirelli
Caterina Doglioni
Gaia Lanfranchi
Jocelyn Rebecca Monroe
Silvia Pascoli
Federica Petricca
Florian Reindl

Why an **I**nitiative for **D**ark **M**atter (in **E**urope and beyond)?



Discovering or constraining dark matter requires **broad discussion**

... but there is to date **no common platform to do so**



aims to be this **common dark matter discussion platform**








where the different communities can **identify cross-fertilization opportunities** for mutual benefits, with an even **broader perspective** of the **complementary** set of experimental searches, astrophysical/cosmological observations and theoretical benchmarks

Conclusions

Our vision is to **create the conditions for cross-talk and further collaboration**
iDMEu enables to do more of the sum of its parts

- iDMEu is meant to be a **service** to the community
- It aims to provide what we (proponents) felt was missing:
 - A **website** to collect and find information / expertise on dark matter
 - Occasions for **broad community cross-talk** in the shape of meetings / discussion sessions at existing conferences
 - A **platform** where new projects can be initiated, including tools to facilitate communication and common scientific interpretations
 - Resources for developing a common **dark matter story** for different audiences
- iDMEu is still developing
 - **Join us with your ideas, questions, and proposals!**

Today's program

2:00 PM	→ 2:30 PM	Coffee available in the meeting room	🕒 30m
2:30 PM	→ 2:35 PM	Introduction from iDMEu organizers	🕒 5m 
2:35 PM	→ 2:40 PM	Introduction from JENA chairpersons Speaker: Andreas Haungs	🕒 5m 
2:40 PM	→ 3:00 PM	iDMEu virtual platform and feedback - Part 1 Speaker: Marco Cirelli (CNRS LPTHE Jussieu)	🕒 20m 
3:00 PM	→ 3:30 PM	Theory landscape and new directions (20' + 10') <p>This contribution includes a talk and a brief discussion on the general topic of “the future of DM models and of phenomenology”. This is intended as a critical reflection on the current status of the theory landscape on DM, covering developments that can be expected, as well as most promising perspectives and directions.</p> Speaker: Dr Giorgio Arcadi (University of Messina (Italy))	🕒 30m 
3:30 PM	→ 4:05 PM	ECFA Detector R&D (DRD) process: liquid detectors/dark matter implications (10'+15'+10') <p>Following the interest at the iDMEu kick-off meeting to understanding potential synergies in detector technologies for dark matter experiments, these two contributions focus on the ongoing ECFA Detector R&D (DRD) process and dark matter with liquid detectors as a case study, and there will be time to discuss the implications for dark matter experiments in general.</p> Speakers: Dr Anyssa Navrer-Agasson (University of Manchester), Ian Shipsey (University of Oxford (GB))	🕒 35m 
4:05 PM	→ 4:35 PM	Dark matter complementarity in Snowmass (20' + 10') <p>In this contribution and discussion session we will highlight the efforts on dark matter complementarity within Snowmass (summarised in https://arxiv.org/abs/2210.01770), and use the discussion to understand whether there is anything to add to the white paper wishlist, to fully take advantage of complementary efforts that we would like to eventually bring forward in the future.</p> Speaker: Deborah Pinna (University of Wisconsin Madison (US))	🕒 30m 
4:35 PM	→ 5:00 PM	iDMEu virtual platform (Part 2) and early feedback (10' + 15') Speakers: Caterina Doglioni (University of Manchester (GB)), Federica Petricca (Max-Planck-Institut für Physik), Dr Gabrijela Zaharijas (University of Nova Gorica), Marco Cirelli (CNRS LPTHE Jussieu)	🕒 25m 

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