

A large, two-story brick house with a gabled roof and multiple chimneys, surrounded by large trees with bright yellow autumn foliage. The house is set on a green lawn with a low hedge in front. The sky is blue with some clouds.

Welcome to the UK HEP Forum 2025

Cosener's House

UK HEP Forum

21–22 October 2025

The Cosener's House, Abingdon, Oxfordshire

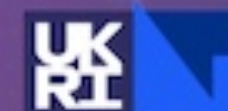
Wandering in the Dark



Registration: <https://conference.lppp.dur.ac.uk/event/1477/registrations/205/>

Organising Committee:

R. Alonso (C), T. Cornford, D. Croon, S. Dixon,
J. Ellis, J. Linacre (C), D. van Dyk, M. Wleiers



Science and
Technology
Facilities Council

Particle Physics

Credits: NASA, ESA, CSA, STScI, CXC

“Midway through our journey...”

- Dante’s ‘Divine Comedy’
(Inferno, Purgatory, Paradise)
- Dante begins the ‘Inferno’ in
a selva oscura (dark wood)

“Midway through our journey,
we find ourselves in a dark
wood, the straight way lost.”

- Allegorie for fund. physics:
We expect much of physics
trues lies in dark sectors and
the straight way forward is
obscured

- Dante aims to escape toward the sunlit hill...



“Abandon all hope, you who enter here.”

Leopard (deception)

- unsurmountable backgrounds
- Noise and foregrounds

Lion (pride and force)

- energy, luminosity, complexity of experiments
- Scale problem for information



Virgil (Dante's guide)

- We have data, calculations and today's speakers to lead us out of the woods

Wolf (insatiable hunger)

- endless appetite for parameter space, larger and more baroque models; more exclusion plots etc.

10:00	Registration and coffee	10:00 - 10:30
	Welcome	Michael Spannowsky 10:30 - 10:35
11:00	Setting the scene	Keir Rogers 10:35 - 11:10
	Hubble Tensions	Eleonora Di Valentino et al. 11:20 - 11:55
12:00	DESI Tension	Willem Elbers 12:05 - 12:40
13:00	Lunch	12:50 - 14:00
14:00	Dark matter theory overview	Malcolm Fairbairn 14:00 - 14:35
15:00	Direct DM searches overview	Laura Baudis 14:45 - 15:20

Lift off

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	Direct DM searches overview Laura Baudis 14:45 - 15:20
15:00	

Cosmology
Dark Energy

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	Welcome <i>Michael Spannowsky</i> 10:30 - 10:35
	Setting the scene <i>Keir Rogers</i> 10:35 - 11:10
11:00	
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15:00	

Dark Matter

	Hunting Semi-Visible Jets with Machine Learning at the Large Hadron Collider	Miguel Angel Avendano Bernal	15:30 - 15:35
	Searching for PBHs with LSST	Benedict Crossey	15:37 - 15:42
	Modelling accidental coincidence backgrounds for the LUX-ZEPLIN experiment	Isabelle Darlington	15:44 - 15:49
	Mitigating Radon Backgrounds with a 214Pb-tag in the LUX-ZEPLIN Experiment	Simran Dave	15:51 - 15:56
16:00	XLZD Discovery Requirements: Background Studies	Rory Matheson	15:58 - 16:03
	Coffee break		16:05 - 16:35
	Science operations of the MIGDAL experiment at NILE	Lex Millins	16:35 - 16:40
	Extended Phenomenology of Neutrino Oscillation in Extra Dimensions	Dhruv Pasari	16:42 - 16:47
	An ultra-high purity electroforming facility at Boulby underground laboratory towards constructing DarkSPHERE	Giovanni Rogers	
17:00	Study of Gas Properties for the DarkSPHERE Direct Dark Matter Search at Boulby Underground Laboratory	Peter Walters	16:56 - 17:01
	XLZD Sensitivity Projection -- Low E ER	Huan Zhang	17:03 - 17:08
	Light dark matter, axions, and all that	Martin Bauer	17:10 - 17:45
18:00	New experimental searches for light DM	Ashlea Kemp et al.	17:55 - 18:30
19:00	The Cosmic Dipole Anomaly	Sebastian von Hausegger	18:40 - 19:00

Actual research results

Dark matter searches

Data analysis - ML

Neutrinos, Black Holes

Axions

light DM

Dipole Anomaly

09:00	Indirect DM Searches Elena Pinetti 09:15 - 09:50	Dark Matter 2
10:00	DM overview at LHC James Frost 10:00 - 10:35	
11:00	Coffee break 10:45 - 11:10	Cosmology Dark Energy 2
	Dark energy theory overview Ed Copeland 11:10 - 11:45	
12:00	Solutions to the DE tensions Elsa Teixeira et al. 11:55 - 12:30	
13:00	Lunch 12:40 - 13:40	Boulby
	Status and plans for the Boulby Underground Laboratory Sean Paling 13:40 - 14:00	
14:00	XLZD at Boulby Henrique Araújo 14:05 - 14:40	
15:00	Future DM experiments (non-XLZD) Christopher McCabe 14:50 - 15:25	Future DM-EXP



Dante's Journey

Nine Circles of Hell

Nine Cicrles of Hell





Nine Circles of Hell

Dante's Journey



Mountain of Purgatory

Mountain of Purgatory



Cosener's House

UK HEP Forum

Nine Cicrles of Hell



Michael Spannowsky



Dante's Journey

Full journey from
being lost to finding
redemption in light



Nine Circles of Hell

Mountain of Purgatory



Mountain of Purgatory

Paradise

Nine Cicrles of Hell



Thank you very much
to STFC and the team
at Cosener's House
for hosting us for this
journey

