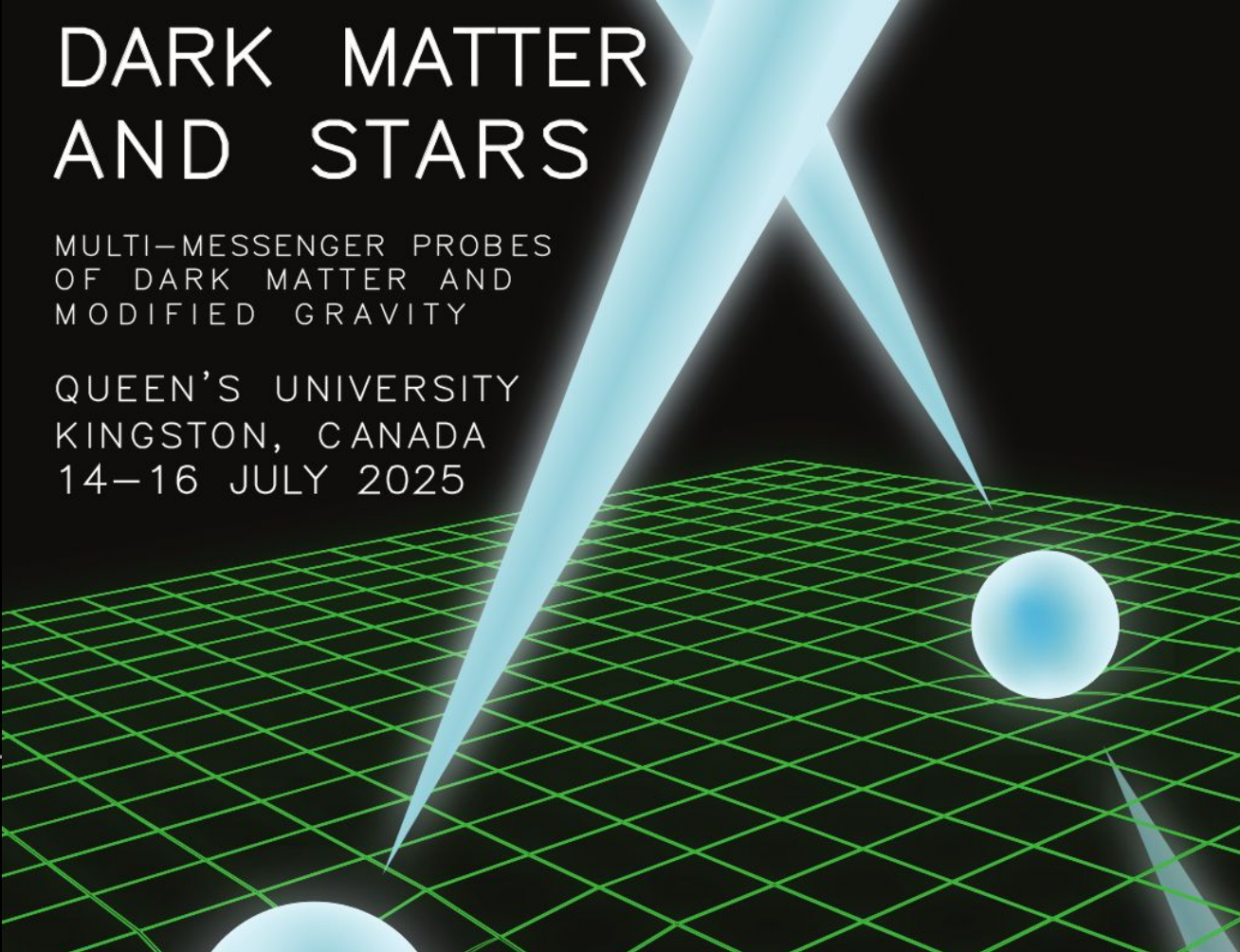


# Welcome to

## DARK MATTER AND STARS

MULTI-MESSENGER PROBES  
OF DARK MATTER AND  
MODIFIED GRAVITY

QUEEN'S UNIVERSITY  
KINGSTON, CANADA  
14-16 JULY 2025

An abstract graphic featuring a green grid pattern on a dark background. Two large, glowing blue spheres are positioned on the grid. Several bright blue, triangular shapes resembling light beams or rays emanate from the top and bottom of the grid, creating a sense of depth and movement.

Joe Bramante  
Queen's University

# Dark Matter and Stars: Multi-Messenger Probes of Dark Matter and Modified Gravity (ICDMS 2025)

icdms2025@gmail.com



## PARTICIPATING INSTITUTIONS

- Queen's University
- Arthur B. McDonald Canadian Astroparticle Physics Research Institute
- Canadian Institute for Theoretical Astrophysics (CITA)
- University of Southampton
- Center for Astrophysics and Gravitation (CENTRA), Instituto Superior Técnico
- University of Coimbra

<https://indico.cern.ch/event/1467343/>



# Queen's University

Queen's University is situated on the territory of the Haudenosaunee and Anishinaabek.

Gimaakwe Gchi-gkinoomaagegamig atemagad Naadowe miinwaa Anishinaabe aking.



Queen's  
UNIVERSITY



McDonald  
Institute

# Previous editions of "Dark Matter and Stars"

<http://iwdms2018.tecnico.ulisboa.pt>



<https://indico.cern.ch/event/1194229>

## DARK MATTER AND STARS

Multi-Messenger Probes of Dark Matter and Modified Gravity

Center for Astrophysics and Gravitation (CENTRA)  
Instituto Superior Técnico (IST) - University of Lisbon, Portugal  
3 - 5 May 2023

### CONFERENCE TOPICS

- Dark matter in compact stars (neutron stars, white dwarfs, exotic stars)
- Multi-messenger and gravitational wave probes of dark matter
- Models of dark matter
- Cosmology
- Modified gravity

Ilídio Lopes  
IST, University of Lisbon

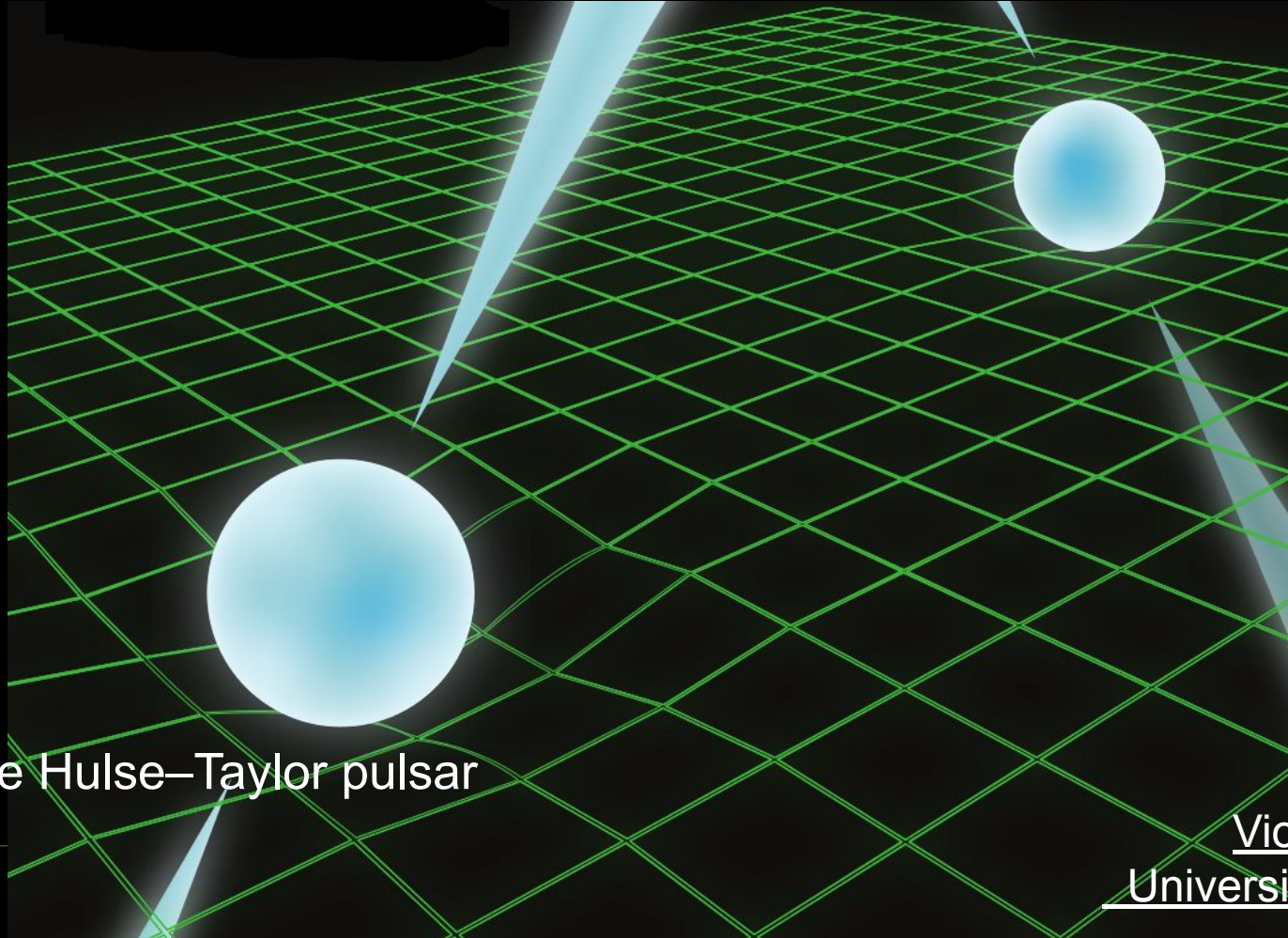
# The 3rd edition of the ICDMS is held outside of Portugal

The conference has officially started its journey around the world!



# The Hulse–Taylor pulsar became the theme for the 3<sup>rd</sup> edition of the ICDMS

The pulsar was discovered by Russell Alan Hulse and Joseph Hooton Taylor Jr. in 1974 and published in 1975



50 years of the Hulse–Taylor pulsar

Violetta Sagun  
University of Southampton

		16:40 - 17:00
17:00	<b>Modified Axion and Dark Photon Emission from Magnetic Dispersion</b>	<i>Nirmalya Brahma</i> 17:00 - 17:20
	<b>Thermal effects on dark matter particle production</b>	<i>Hugo Schérer</i> 17:20 - 17:40
	<b>Dark neutron star formation in a heavy mirror dark sector</b>	<i>Jacob Litterer</i> 17:40 - 18:00
18:00	<b>Welcome reception</b>	18:00 - 19:00
19:00		

# WELCOME RECEPTION

**When: Today, July 14th at 6pm**

# Breakfast

Tuesday and Wednesday between 9:00-9:30

09:00	<b>Breakfast</b>	09:00 - 09:30
	<b>Immortal Stars at the Galactic Center</b>	<i>Isabelle John</i> 09:30 - 10:00
10:00	<b>Milky Way White Dwarfs as Sub-GeV to Multi-TeV Dark Matter Detectors</b>	<i>Lillian Santos-Olmsted</i> 10:00 - 10:25

# Conference photo

Tuesday, July 15th at 15h25

Conference photo

15:25 - 15:30





# CONFERENCE DINNER

**Where: Isabel Bader Centre for the Performing Arts  
(10 min walk)**

**When: Tuesday, July 15th, 7pm**


**Aaron Vincent  
Queen's University**

# Where to eat



Please use your laptops  
and upload the presentation on indico page

# Talks

	<b>Phenomenology of Dark Matter in Neutron Stars and compact objects</b>	<i>Giorgio Busoni</i>
		09:30 - 10:00
10:00	<b>Building and looking for dark compact objects</b>	<i>Melissa Diamond</i>
		10:00 - 10:30
	<b>Coffee break</b>	10:30 - 11:00
11:00	<b>The neutron lifetime anomaly, dark baryons, and their impact on neutron star mergers</b>	<i>Steven Harris</i>
		11:00 - 11:25
	<b>The Impact of Dark Matter on the Dynamics of Binary Neutron Star Mergers</b>	<i>Dr Violetta Sagun</i> 
		11:25 - 11:50
12:00	<b>Neutron Stars with Dark Matter Halos</b>	<i>Shafayat Shawqi</i>
		11:50 - 12:15

# LET US START

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OF DARK MATTER AND  
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14-16 JULY 2025



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COIMBRA

