A DISON 2024 SEARCHING FOR THE SOURCES OF GALACTIC COSMIC RAYS

OCTOBER 14-17



Paolo Desiati









Speakers

Despite ongoing research, the question of where cosmic rays originate within the Milky Way remains unanswered. The symposium will host a number of invited speakers who are experts in various aspects of galactic multi-messenger astrophysics.

M. Ahlers (Niels Bohr Institute, Denmark) **P. Blasi** (GSSI, L'Aquila, Italy) **Z. Cao** (IHEP, China) **D. Caprioli** (University of Chicago, USA) I. De Mitri (GSSI, L'Aquila, Italy) J.C. Díaz Vélez (UW–Madison, USA) **K. Fang** (UW–Madison, USA) **G. Giacinti** (Tsung-Dao Lee Institute, China) **J. Goodman** (University of Maryland, USA) **S. Gossan** (Hofstra University, USA) **F. Halzen** (UW–Madison, USA) **D. Hooper** (UW–Madison, UChicago, USA) **K. Kawata** (University of Tokyo, Japan) **J. F. Krizmanic** (NASA, USA)

- **T. Linden** (Stockholm University, Sweden) **R. López-Coto** (Instituto del Astrofísica de Andalucía, Spain)
- **L. Merten** (Ruhr University Bochum, Germany)
- **P. Mertsch** (*RWTH* Aachen University, Germany)
- **P. Mohanty** (Tata Institute of Fundamental Research, India)
- **G. Morlino** (INAF Firenze, Osservatorio di Arcetri, Italy)
- I. Moskalenko (Stanford University, USA)
- **M. Negro** (Louisiana State University, USA)
- **N. Park** (Queen's University, Canada)
- **S. Toscano** (ULB, Brussels, Belgium)
- **P. Zuccon** (University of Trento, Italy)
- **E. Zweibel** (UW–Madison, USA)





Scientific Committee

P. Blasi (GSSI, L'Aquila, Italy)

D. Caprioli (UChicago, USA)

K. Fang (UW–Madison, USA)

F. Halzen (UW–Madison, USA)

S. Marka (Columbia University, USA) **S. Toscano** (ULB, Brussels, Belgium)

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Two dedicated discussion panels will provide opportunities for open discussion. One panel will delve into the current status and challenges of multi-messenger observations and theoretical modeling. The other will address the future of observations and instrumentation required to make a breakthrough in our understanding of the galactic origin of cosmic rays.

Current State of Multimessenger Astrophysics

P. Huentemeyer (Michigan Technological University, USA)

A. Neronov (Ecole Polytechnique Federale de Lausanne, Switzerland)

J. Vandenbroucke (UW–Madison, USA)

Local Organizing Committee

P. Desiati (UW–Madison, USA) J.C. Díaz Vélez (UW–Madison, USA) **A. Fleagle** (UW–Madison, USA)

Future of Multimessenger Astrophysics

S. Marka (Columbia University, USA) K. Murase (Penn State University, USA) E. Waxman (Weizmann Institute of Science, Israel)



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WIPAC







NARF

P. Desiati (UW–Madison, USA)

A. Fleagle (UW–Madison, USA)

J.C. Díaz Vélez (UW–Madison, USA)

Local Organizing Committee



Mon 14/10

08:00

	Northwoods Room,
	AMS-02 results an
10:00	
	Northwoods Room,
	Coffee Break
	Northwoods Room,
11:00	Science Results o
	Northwoods Room,
	Lunch (On Your O
12:00	
13:00	
	Results from the I
	Northwoods Room,
14:00	Spectral Signature
	Northwoods Room,
15:00	Coffee Break
15.00	Northwoods Room,
	Investigating the 0
	Northwoods Room,
16:00	Multi-messenger r
	Northwoods Room,
18:00	Special Events: W
19:00	

	Paolo Desiati
n, Union South, University of Wisconsin–Madison	08:45 - 09:00
Rays: loose ends or shaking pillars? (remote)	Pasquale Blasi
n, Union South, University of Wisconsin–Madison	09:00 - 09:45
and perspectives for future measurements with a magnetic spectrometer	Paolo Zuccon
n, Union South, University of Wisconsin–Madison	09:45 - 10:30
n, Union South, University of Wisconsin–Madison	10:30 - 11:00
of 9 Years of Measurements from CALET Operation on the International Space Station	John Krizmanic
n, Union South, University of Wisconsin–Madison	11:00 - 11:45
Own)	
	11.45 12.15
DAMPE space mission (remote)	11:45 - 13:15 Ivan De Mitri
	Wan De Willin
n, Union South, University of Wisconsin–Madison	13:15 - 14:00
res of Local Cosmic Ray Sources	lgor Moskalenko
n, Union South, University of Wisconsin–Madison	14:00 - 14:45
n, Union South, University of Wisconsin–Madison	14:45 - 15:15
CREDIT history of supernova remnants as cosmic-ray sources	Philipp Mertsch
n, Union South, University of Wisconsin–Madison	15:15 - 16:00
modeling of Galactic cosmic-ray acceleration and transport	Lukas Merten
n, Union South, University of Wisconsin–Madison	16:00 - 16:45

lcome Reception









SEARCHING FOR THE SOURCES OF GALACTIC COSMIC RAYS

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09:00	Recent Results of Pravata Kumar Mo
	Northwoods Room
	In-person present
10:00	
	Northwoods Room
	Coffee Break
	Northwoods Room
11:00	The Fermi view of
	Northwoods Room
	Lunch (On Your C
12:00	
13:00	
	HAWC Observation Juan Carlos Díaz N
	Northwoods Room
14:00	Galactic Gamma
	Northwoods Room
	Coffee Break
15:00	Northwoods Room
	Young stellar clus
	Northwoods Room
16:00	In-person present
	Northwoods Room
	Panels: Current S
17:00	Northwoods Room
18:00	

Tue 15/10

20:00

19:00

n Cosmic Ray Spectrum and Anisotropy from the GRAPES-3 Experiment (remote)	
n, Union South, University of Wisconsin–Madison	09:00 - 09:45
tation	Zhen Cao
, Union South, University of Wisconsin–Madison	09:45 - 10:30
n, Union South, University of Wisconsin–Madison	10:30 - 11:00
f the Galactic diffuse gamma-ray emission	Michela Negro
, Union South, University of Wisconsin–Madison	11:00 - 11:45
Dwn)	
	11:45 - 13:15
ons of the Spectrum, Composition and Anisotropy of Cosmic Rays Below the Knee Vélez	
n, Union South, University of Wisconsin–Madison	13:15 - 14:00
Ray Sources as seen by HAWC	Jordan Goodman
, Union South, University of Wisconsin–Madison	14:00 - 14:45
n, Union South, University of Wisconsin–Madison	14:45 - 15:15
ster as cosmic ray sources	Giovanni Morlino
, Union South, University of Wisconsin–Madison	15:15 - 16:00
tation	Nahee Park
n, Union South, University of Wisconsin–Madison	16:00 - 16:45
State of Multimessenger Astrophysics Andrii Neronov, Prof. Justin Vandenbroucke	e, Petra Huentemeyer
n, Union South, University of Wisconsin–Madison	16:45 - 17:45

Special Events: Ghost Tour (Advance Registration and Payment Required)

Madison Ghost Walks



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1000 Northwoods Room, Union South, University of Wisconsin–Madison 09:45 - Coffee Break 00:00 Northwoods Room, Union South, University of Wisconsin–Madison 10:30 - 11:00 Parels: Euture of Multimessenger Astrophysics Eli Waxman, Kohta Murase, Szabolcs 12:00 Northwoods Room, Union South, University of Wisconsin–Madison 11:00 - 12:00 Lunch (On Your Own) 12:00 - 13:00 In-person presentation Sarah Ga 14:00 The Unexpected TeV Emitters in the Galactic Plane Ker 15:00 Coffee Break 14:45 - 15:00 Korthwoods Room, Union South, University of Wisconsin–Madison 14:45 - 16:00 Northwoods Room, Union South, University of Wisconsin–Madison 14:45 - 16:00 Korthwoods Room, Union South, University of Wisconsin–Madison 14:45 - 16:00 Korthwoods Room, Union South, University of Wisconsin–Madison 14:45 - 16:00 Korthwoods Room, Union South, University of Wisconsin–Madison 15:15 - 16:00 Korthwoods Room, Union South, University of Wisconsin–Madison 15:15 - 16:00 Korthwoods Room, Union South, University of Wisconsin–Madison 15:15 - 16:		Galactic gamma-ray PeVatron observations and non-thermal processes in galactic sources	(remote) Rubén López
10.000 Northwoods Room, Union South, University of Wisconsin-Madison 09.45 - Coffee Break Northwoods Room, Union South, University of Wisconsin-Madison 10.30 - 11.000 Panels: Future of Multimessenger Astrophysics Elf Waxman, Kohta Murase, Scaboles 12.000 Northwoods Room, Union South, University of Wisconsin-Madison 11.00 - 12.001 Lunch (On Your Own) 11.00 - 12.002 Interaction of South, University of Wisconsin-Madison 11.00 - 12.003 Lunch (On Your Own) 11.00 - 12.004 Interaction of South, University of Wisconsin-Madison 11.00 - 12.004 Northwoods Room, Union South, University of Wisconsin-Madison 11.00 - 12.004 Northwoods Room, Union South, University of Wisconsin-Madison 13.15 - 14.007 Northwoods Room, Union South, University of Wisconsin-Madison 13.15 - 14.007 Coffee Break 14.00 - 15.008 Northwoods Room, Union South, University of Wisconsin-Madison 14.00 - 15.017 Interaction of Cosmic Rays at Mesoscopic Scales ELLENG GOULD 20.02 - 15.018 Northwoods Room, Union South, University of Wisconsin-Madison 15.15 - 16.000 Coffee Brea		Northwoods Room, Union South, University of Wisconsin–Madison	09:00 -
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Wed 16/10

SEARCHING FOR THE SOURCES OF GALACTIC COSMIC RAYS

The SuGAR symposium aims to investigate the long-standing mystery surrounding the

origin of cosmic rays within our galaxy. This event will bring together renowned experts to discuss both experimental and theoretical aspects of cosmic ray physics, with a particular emphasis on galactic sources.

Speakers

Despite ongoing research, the question of where cosmic rays originate within the Milky Way remains unanswered. The symposium will host a number of invited speakers who are experts in various aspects of galactic multi-messenger astrophysics.

- **M. Ahlers** (Niels Bohr Institute, Denmark)
- **P. Blasi** (GSSI, L'Aquila, Italy)
- Z. Cao (IHEP, China)
- **D. Caprioli** (University of Chicago, USA)
- I. De Mitri (GSSI, L'Aquila, Italy)
- J.C. Díaz Vélez (UW-Madison, USA)
- **K. Fang** (UW–Madison, USA)
- **G. Giacinti** (Tsung-Dao Lee Institute, China)
- **J. Goodman** (University of Maryland, USA)
- **S. Gossan** (Hofstra University, USA)
- **F. Halzen** (UW–Madison, USA)
- **D. Hooper** (UW–Madison, UChicago, USA)
- **K. Kawata** (University of Tokyo, Japan)
- **J. F. Krizmanic** (NASA, USA)

- **T. Linden** (Stockholm University, Sweden) **R. López-Coto** (Instituto del Astrofísica de Andalucía, Spain)
- **L. Merten** (Ruhr University Bochum, Germany)
- **P. Mertsch** (*RWTH* Aachen University, Germany)
- **P. Mohanty** (Tata Institute of Fundamental
- Research, India)
- **G. Morlino** (INAF Firenze, Osservatorio di Arcetri, Italy)
- I. Moskalenko (Stanford University, USA) **M. Negro** (Louisiana State University, USA)
- **N. Park** (Queen's University, Canada)
- **S. Toscano** (ULB, Brussels, Belgium)
- **P. Zuccon** (University of Trento, Italy)
- **E. Zweibel** (UW–Madison, USA)

Panelists

Two dedicated discussion panels will provide opportunities for open discussion. One panel will delve into the current status and challenges of multi-messenger observations and theoretical modeling. The other will address the future of observations and instrumentation required to make a breakthrough in our understanding of the galactic origin of cosmic rays.

Current State of Multimessenger Astrophysics

- **P. Huentemeyer** (Michigan Technological University, USA)
- A. Neronov (Ecole Polytechnique Federale de
- Lausanne, Switzerland)
- J. Vandenbroucke (UW–Madison, USA)

Future of Multimessenger Astrophysics

- **S. Marka** (Columbia University, USA)
- **K. Murase** (Penn State University, USA)
- E. Waxman (Weizmann Institute of Science, Israel)

Scientific Committee

P. Blasi (GSSI, L'Aquila, Italy) **F. Halzen** (UW–Madison, USA)

D. Caprioli (UChicago, USA) **S. Marka** (Columbia University, USA) K. Fang (UW–Madison, USA) S. Toscano (ULB, Brussels, Belgium)





W **WIPAC**

NARF

Local Organizing Committee

P. Desiati (UW–Madison, USA) J.C. Díaz Vélez (UW–Madison, USA) **A. Fleagle** (UW–Madison, USA)

Vorthwoods Roo ceCube's Gala 10:00 lorthwoods Roo Coffee Break Northwoods Room 11:00 Searching for **(** Northwoods Roo Lunch (On Your 12:00 13:00 Northwoods Rool In-person pres rthwoods Ro 14:00 Symposium's orthwoods Ro

Thu 17/10

A Multi-Messer

09:00

We'll write up a summary of the topics discussed at the symposium, including the current status and future.

er View of the Milky Way	Dan Hooper
n, Union South, University of Wisconsin–Madison	09:00 - 09:45
ic Neutrinos: Diffuse Emission or Hidden Sources?	Markus Ahlers
n, Union South, University of Wisconsin–Madison	09:45 - 10:30
n, Union South, University of Wisconsin–Madison	10:30 - 11:00
lactic PeVatrons with the Tibet ASgamma Experiment	Dr Kazumasa Kawata
n, Union South, University of Wisconsin–Madison	11:00 - 11:45
Own)	
n, Union South, University of Wisconsin–Madison	11:45 - 13:15
ntation	Tim Linden
n, Union South, University of Wisconsin–Madison	13:15 - 14:00
mmary	Simona Toscano
n, Union South, University of Wisconsin–Madison	14:00 - 14:30



Restaurants around Union South





Union South





🔛 Cuisine 👻 (€) Hours ▼ 荘 All filters Conklin PI







OCTOBER 14-17

14-17 October 2024 Union South, University of Wisconsin–Madison US/Central timezone

Overview

Speakers and Panelists

Call for Abstracts

Timetable

Payment

Contribution List

Registration

Participant List

Hotels

Visiting Madison

Special Events

Previous Symposium Editions

Contact

Sugar2024@icecube.wis…

Visiting Madison

General Tourism Information Tourism information is available from the following sources:

- Visit Downtown Madison
- Destination Madison
- Travel Wisconsin

Transportation to Madison

Madison is served by the Dane County Regional Airport (airport code MSN). It is also accessible via the Van Galder Bus Company from Chicago O'Hare International Airport (ORD) and Badger Coaches from Milwaukee Mitchell International Airport (MKE).

Getting Around Madison

Madison Metro Transit Bus System offers local bus service around the city, particularly in the downtown and campus areas. Bus fare is \$2 per ride, except for routes 80, 81, 82, and 84, which are free. These routes serve the university and areas immediately around campus.

Bus timetables are available on the Metro Transit website, Google Maps, and the Transit app.

Madison is very bicycle-friendly and offers B-Cycle bike rental stations throughout the city.

Uber and Lyft are available in Madison. Taxi service is limited, but available from Union Cab Cooperative and Madison Taxi. Taxis in Madison do not pick up street fares, and wait times can be long. Advance booking is encouraged.







SEARCHING FOR THE SOURCES OF GALACTIC COSMIC RAYS

OCTOBER 14-17

welcome to SuGAR 2024

welcome to Madison











