

Windows on the Universe: the Era the Multi-Messenger Astrophysics (WoU-MMA)

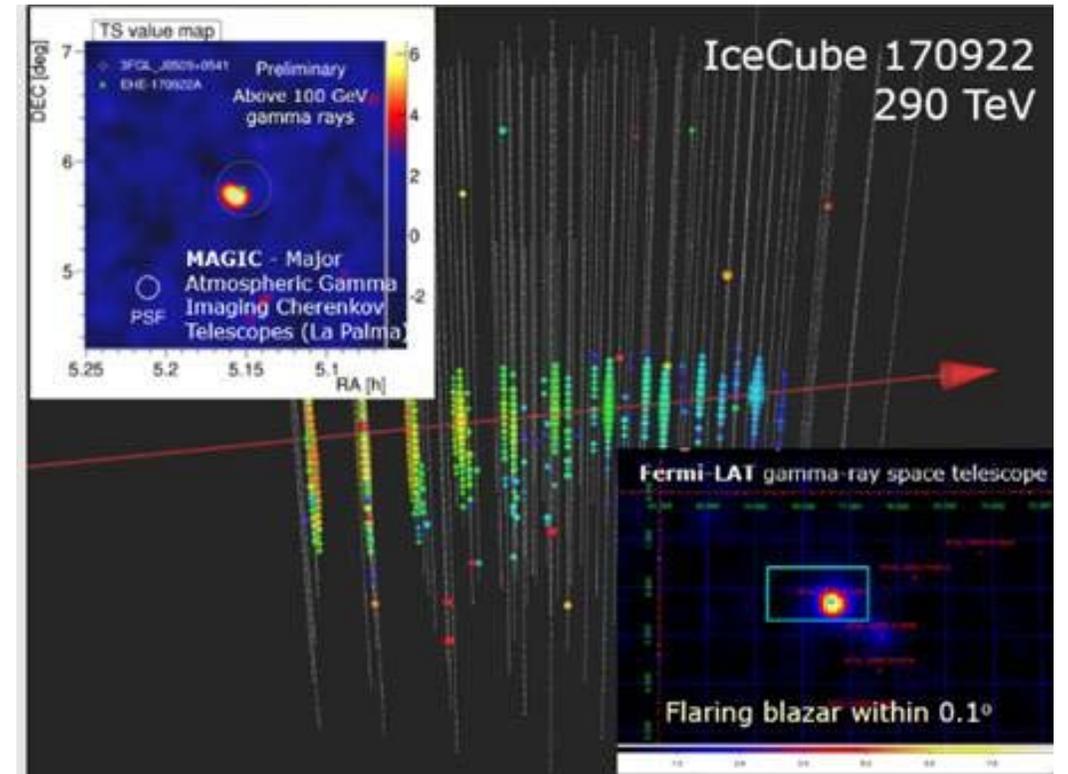
Joe Pesce (AST) & Jean Cottam Allen (PHY)

MPSAC Meeting – August 14, 2018



The Era of Multi-Messenger Astrophysics

The universe is the ultimate laboratory! We can now probe it as never before through several powerful and diverse windows – electromagnetic waves, high-energy particles, and gravitational waves. Each of these windows provides a different view. Together they reveal a detailed picture of the Universe that will allow us to study matter, energy, and the cosmos in fundamentally new ways.





WoU-MMA Goals

To build the capabilities and accelerate the synergy and interoperability of the three messengers to realize integrated, multi-messenger astrophysical explorations of the Universe

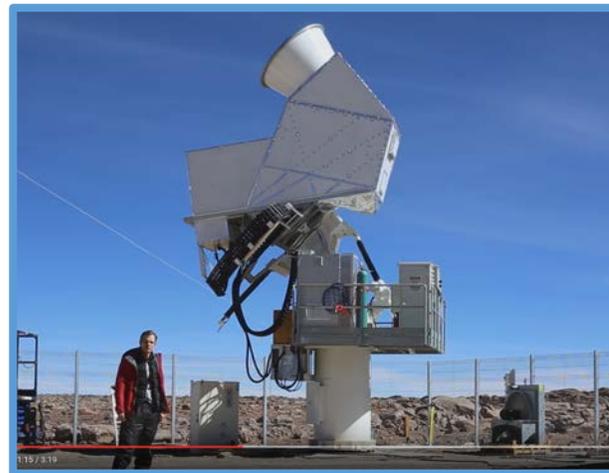
Three areas of focus:

- Enhancing and accelerating the theoretical, computational, and observational activities within the scientific community
- Building dedicated midscale experiments and instrumentation
- Exploiting current facilities and developing the next generation of observatories



Scientific Community

Enhanced investments in the activities of the scientific community will build the observational, computational, and analysis capabilities in each of the three window areas, integrate the different research communities to develop full interoperability between the three windows, and develop a new workforce that is skilled in this new paradigm.



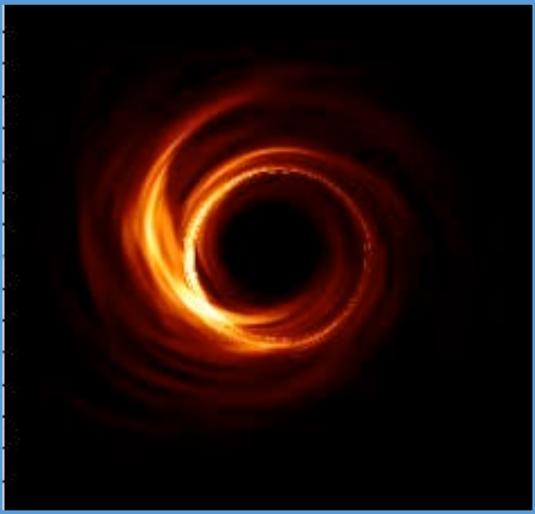
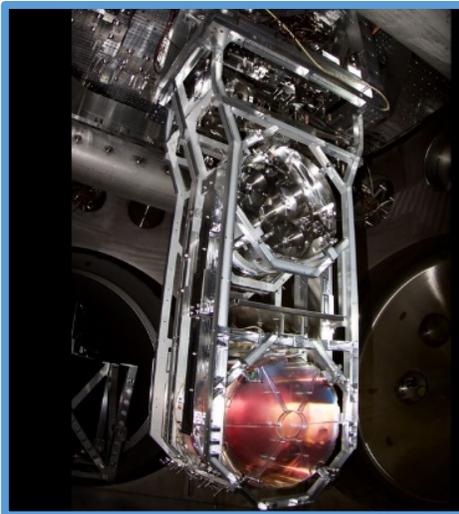
Credit: Optical Society/NCSA/





Midscale Experiments and Instrumentation

New experiments and instrumentation in the midscale project range will make critical contributions to the multi-messenger research infrastructure by enabling new capabilities in energy range or sky coverage, improved sensitivity, or new computational and data analysis capabilities.



SOUTHERN
GAMMA-RAY
SURVEY
OBSERVATORY

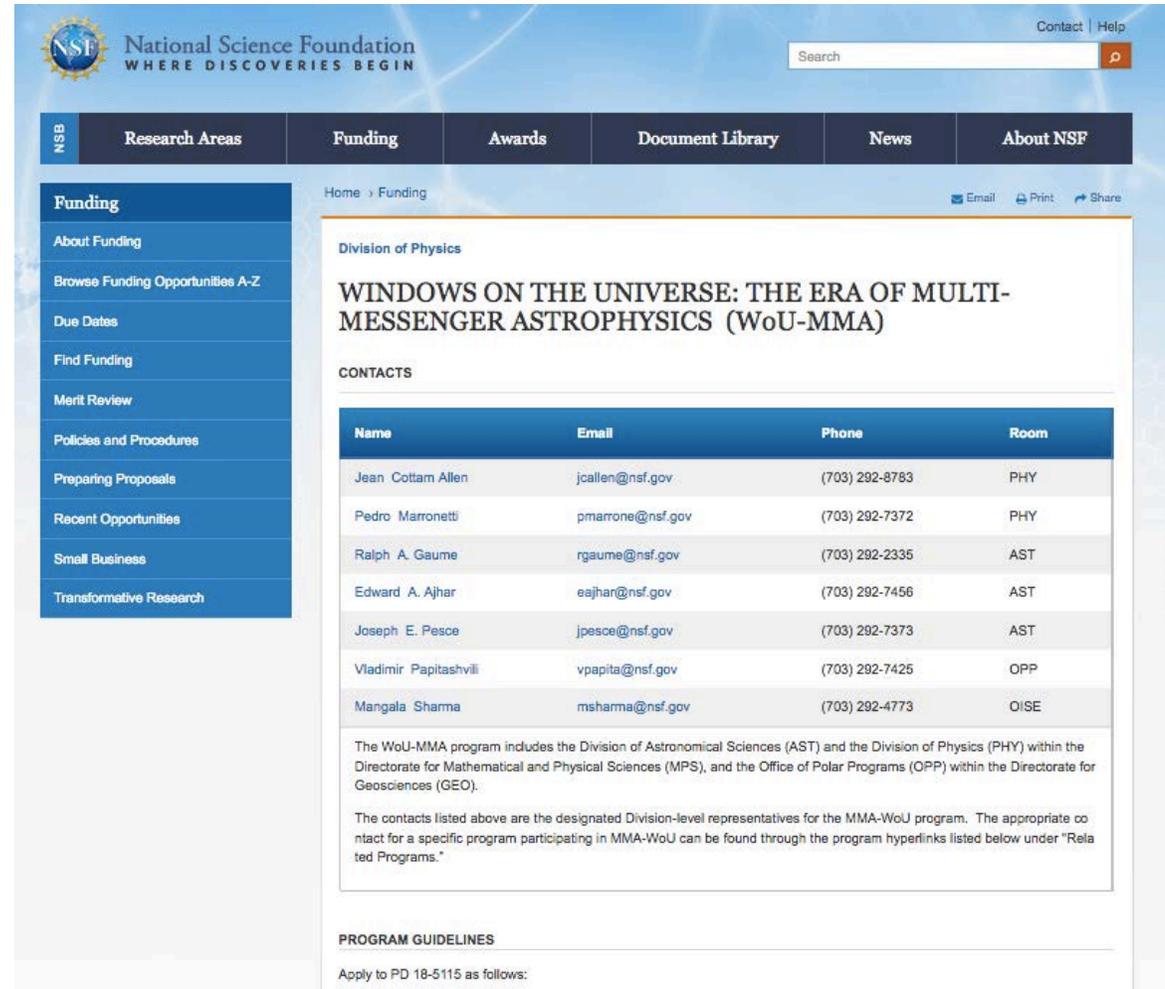
Credit: LIGO.org/



WoU-MMA Implementation

WoU-MMA Program Description
[18-5115](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505593) - Posted July 31, 2018.

- Proposals submitted to participating programs in MPS/AST, MPS/PHY and GEO/OPP.
- Common criteria must be addressed for all WoU-MMA proposals.
- Coordination Group facilitates and coordinates WoU-MMA activity across Divisions/Offices.
- Proposals funded through “Big Idea” allocation as well as existing programs.



The screenshot shows the NSF website page for the WoU-MMA program. The header includes the NSF logo and the tagline "WHERE DISCOVERIES BEGIN". The main navigation bar includes links for Research Areas, Funding, Awards, Document Library, News, and About NSF. The left sidebar lists various funding-related options such as About Funding, Browse Funding Opportunities A-Z, Due Dates, Find Funding, Merit Review, Policies and Procedures, Preparing Proposals, Recent Opportunities, Small Business, and Transformative Research. The main content area is titled "Division of Physics" and features the program title "WINDOWS ON THE UNIVERSE: THE ERA OF MULTI-MESSENGER ASTROPHYSICS (WoU-MMA)". Below the title is a "CONTACTS" section with a table listing contact information for several individuals. The table has columns for Name, Email, Phone, and Room. Below the table is a paragraph explaining the program's scope and a note about the designated Division-level representatives. At the bottom, there is a "PROGRAM GUIDELINES" section with the instruction "Apply to PD 18-5115 as follows:".

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(https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505593)



Windows on the Universe Team

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Windows Working Group

Co-Chairs: Jean Cottam Allen (MPS/PHY) and Ralph Gaume (MPS/AST)

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QUESTIONS?



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