

Physics Colloquium

Monday, February 10, 2020 / Pupin Hall Theory Center, 8th Floor / 12:30 PM

Lunch will be available for attendees

"Realtime multi-messenger astronomy: from automatization to discoveries"

Marek Kowalski - DESY



With the recent discoveries of gravitational waves and high-energy cosmic neutrinos, we are witnessing the beginning of a new era in Multi-Messenger astronomy. The exploration of the Universe through these new messengers, along with electromagnetic radiation and cosmic rays, provides for new insights into the most extreme, energetic cosmic events, environments and particle accelerators. The objects of interest range from galaxies with accreting supermassive black holes in their center to coalescing stellar neutron stars.

A common theme is the need for fast follow-up observations as well as for methods to handle the ever-increasing and diverse multi-messenger data sets.

In my talk I will discuss the scientific potential of multi-messenger astronomy, introduce our solutions to harnessing the realtime data streams via a new level of automatization, and present selected new results from the Zwicky Transient Facility and the IceCube neutrino observatory.