

Multi-Messenger Astronomy

Nozomu Tominaga

Professor, Graduate School of Natural Science, Konan University
and Kavli IPMU Visiting Senior Scientist

Astronomy has developed since ancient times with optical observations in which visible light is used as a messenger from astronomical objects. From the 20th century, the development of new instruments enabled observations with other electro-magnetic waves like radio, infrared, ultraviolet, X-rays, and gamma-rays. This clarified new aspects of astronomical objects and expanded human knowledge. Recently, astronomy with other messengers like cosmic rays, neutrinos, or gravitational waves other than electro-magnetic waves is also being developed. Multi-messenger astronomy is the astronomy that derives the information from a combination of these multiple messengers from astronomical objects.

