Multi-Messenger Astronomy and Astrophysics

Astronomy used to be all about seeing the sky. Seeing here physically means detecting photons coming from the universe. This traditional concept of astronomy has been changing dramatically as non-electromagnetic observation such as gravitational wave and neutrino became possible. As a result, a new era of astronomy often called multi-messenger astronomy emerged. Although multi-messenger astronomy has got a spotlight recently particularly after the first observation of gravitational wave coming from merging black holes, the efforts of observing the universe with non-electromagnetic observation are older than several decades. In this talk, I will review a brief history of multi-messenger astronomy with my own perspective and present some results and ideas that my research group at UNIST has been contributing to as members of various international collaborations such as KAGRA, Einstein Telescope, Hyper-Kamiokande, and Korea Neutrino Observatory.