中華民國天文學會
The Astronomical Society of the Republic of China (Taiwan)

Contribution ID: **63** Type: **Poster**

ML investigation of GW SkyLocator with the application of Auto-Regressive Quadratic-Spline flow.

With the growing population of gravitational-wave (GW) events, electromagnetic (EM) follow-up observations have become important for multi-messenger astronomy. Since the EM afterglows of the compact binary coalescences (CBCs) decay rapidly, prompt and reliable GW localizations are essential for the EM counterpart identification. This poster presents the results of the Auto-regressive Rational Quadratic Spline (ARQS) GW-Sky Locator, which provides fast GW localizations comparable to the conventional rapid sky localization Bayestar method. Auto-regressive normalizing flow was employed to compute the probability density of a GW location from an initial normal distribution. We then performed deep learning to infer the probability density in astronomical coordinate systems.

Section

Cosmology

Primary authors: HUANG, Yi-Sheng (National Cheng Kung University); LIN, Lupin C. C. (National Cheng Kung University); Mr CHANG, Chih-Yi (National Tsing Hua University); Ms CHEN, Jheng-Min (National Yang Ming Chiao Tung University); Dr CHATTERJEE, Chayan (Vanderbilt University); LI, Kwan-Lok (National Cheng Kung University)

Presenter: HUANG, Yi-Sheng (National Cheng Kung University)

Session Classification: Poster-GW