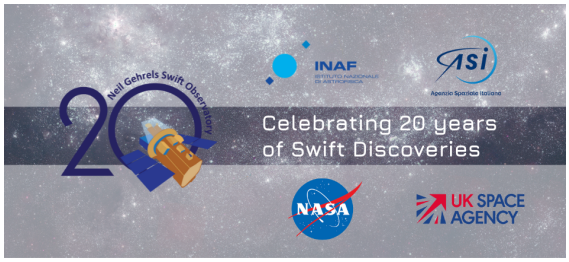

Contribution ID: **36** Type: **Contributed talk**

Gravitational-Wave Follow-Up Strategy for the UltraViolet EXplorer (UVEX) Mission

Wednesday 26 March 2025 10:00 (15 minutes)

The UltraViolet EXplorer (UVEX) is a Medium-Class Explorer (MIDEX) mission selected by NASA for launch in 2030. UVEX will conduct an unprecedented all-sky time-domain survey in two UV filters. UVEX will follow up GW binary neutron star mergers as targets of opportunity, rapidly scanning across their localization regions to search for their kilonova counterparts. Early-time multiband ultraviolet light curves of kilonovae are key to explaining the interplay between jet and ejecta in binary neutron star mergers. Owing to high Galactic extinction in the ultraviolet and UVEX's large field of view, variation in sensitivity across the GW region of interest is an important consideration for observation planning. We present a strategy for GW follow-up with UVEX in which exposure time is adjusted for each field individual to maximize the overall probability of detection. We have implemented this strategy in an open source astronomical scheduling toolkit called M4OPT (Multi-Mission Multi-Messenger Observation Planning Toolkit), on GitHub at https://github.com/m4opt/m4opt.

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