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ET-WST synergy for next generation gravitational wave multi-messenger observations

Friday, 12 July 2024 17:00 (25 minutes)

The Einstein Telescope (ET), third generation gravitational wave (GW) interferometer, will explore a large volume of the universe, detecting up to 10^5 binary neutron star system mergers (BNS) per year, beyond redshift z ~ 3. This will clearly revolutionize GW multi-messenger (MM) astrophysics. A significant amount of electromagnetic (EM) counterpart candidates will be provided by optical-NIR photometric observations within the large GW signal error regions: the bottleneck of GW MM science will be to gather the spectroscopic data required to discriminate against EM counterpart candidates, identifying and characterizing them. New observational strategies will be necessary and they have to be prepared well in advance of ET operations.
I will present the results of the work that I am carrying out within the Wide-field Spectroscopic Telescope (WST) science team and the MM division of the ET Observational Science Board to assess the impact of next generation Integral-Field Spectroscopy (IFS) and Multi-Object Spectroscopy (MOS) on the detection, identification and characterisation of the EM counterparts of ET BNS.

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