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Envisioning Tomorrow: INAF prospects and challenges for multi-messenger astronomy in the era of Einstein Telescope

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INAF will play a key role in the newborn multi-messenger astronomy field allowing us to study and identify the likely faint and rapidly fading electromagnetic counterparts of the hundreds gravitational wave (GW) events expected by the 2nd generation GW detectors network at full sensitivity together with upcoming electromagnetic facilities like Rubin telescope.

In this talk, I will present all the activities we are carrying out to optimize the response of the Italian and European network of facilities to expected GW triggers, and how the team is working in the context of the search for electromagnetic counterparts of GW sources and their spectroscopic characterization, also in anticipation of the arrival of the Einstein Telescope, in which our large community is involved.

All the activities are expected to provide means and opportunities to the Italian and European astronomical communities to have a leading role in the GW and Time Domain Astronomy.

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