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## **Micro-Hertz Gravitational Waves (0.1-100 $\mu$ Hz): Overview of Sources and Detection Methods**

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Micro-Hertz Gravitational Waves (0.1-100  $\mu$ Hz): Overview of Sources and Detection Methods

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The micro-Hz GW (Gravitational Wave) band, ranging from 0.1 to 100  $\mu$ Hz, occupies a crucial intermediate gap between the PTA (Pulsar Timing Array) GW detection band (0.03–100 nHz) and the sensitive bands of space missions like LISA/Taiji/TianQin (0.1 mHz–1 Hz). This frequency range is abundant with potential GW sources. The primary scientific objectives within this band include the detection of GWs from supermassive BH (Black Hole) binary inspiral and coalescence events spanning masses of  $10^5$ - $10^{10}$  solar masses, as well as GWs emitted during the inspiral phase of intermediate-mass BH coalescence and intermediate BH binaries falling into supermassive BHs. Detection of micro-Hz GWs will provide opportunities to study the BH co-evolution with the galaxies, to test general relativity and beyond-the-Standard-Model theories, to explore the micro-Hz stochastic GW background and so on. Great advances in both scientific goals and detection methods have accumulated since MG16. We here give an overview for this parallel session.

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