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Ever since the first detection of gravitational waves in 2015 by LIGO and VIRGO collaborations, it became a certitude that they represent important messengers of the most violent and energetic astrophysical processes and of the primordial Universe.
Current and future gravitational wave detectors are designed to cover a broad spectrum of frequencies, from high (10 Hz to 103 Hz) to very low (< 10-9 Hz), each sensitive to different sources of gravitational waves. In order to be properly prepared to process and understand the amount of information emerging from these missions, the scientists need to compile comprehensive catalogues of potential gravitational wave sources and generate corresponding gravitational wave templates. Here, we present our efforts in creating a catalogue of potential sources that are detectable by low to mid-frequency gravitational wave detectors such as the proposed AEDGE and AION. Also, we do a multi-messenger exploration of the AEDGE/AION potentially detectable gravitational wave sources parameter space, by combining electromagnetic observations with gravitational wave simulations and constraining specific parameters. We also generate a set of simulated gravitational waveforms, intended for the development of future data analysis tools. These tools will be essential in processing and interpreting the data produced by these experiments.

Session Classification: Poster Session & Wine & Coffee