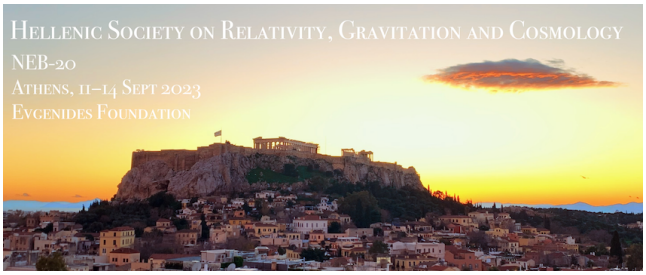

Contribution ID: **49** Type: **not specified**

Extreme mass ratio inspirals and action-angle coordinates

Monday, 11 September 2023 18:20 (20 minutes)

Action-angle (AA) coordinates are commonly used in theoretical description of extreme mass ratio inspirals (EMRI), as they are naturally associated with the two dynamical timescales present in EMRI. However the AA coordinates are rarely used in practical calculations. In our work we implemented analytic methods of canonical perturbation theory to transform geodesic Hamiltonian into AA coordinates and then proceeded by calculating gravitational-wave fluxes which were then used to adiabatically evolve the EMRIs. The methods are demonstrated on two axially symmetric spacetimes, Schwarzschild black hole perturbed by an external quadrupole and secondly the Kerr spacetime.

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Session Classification: Parallel Session B