Contribution ID: **67** Type: **not specified**

post-Newtonian expansions of equatorial eccentric Kerr EMRIs using the s = +2 Teukolsky functions

Tuesday 4 July 2023 09:00 (20 minutes)

Calculations involving Kerr extreme-mass-ratio inspirals (EMRIs) often involve solving the s = -2 Teukolsky functions. In the cases where the s = +2 Teukolsky functions are warranted, they are usually obtained through the use of a Starobinsky transformation. In our work, we decided to directly construct post-Newtonian (PN) expansions of s = +2 Teukolsky functions using the MST method. First, as a check on our group's previous work with PN expansions using the s = -2 Teukolsky functions, and second, to develop a general toolkit for analytical PN expansions of the Teukolsky functions independent of the value of s. In this presentation, we discuss the changes needed to efficiently construct the PN expansion of the s = +2 Teukolsky functions, as well as a comparison of the PN expanded quantities that we extracted using both s = +2 and s = -2 Teukolsky functions, expanded up to 8 PN and e^{20}.

Presenter: CASTILLO, Jezreel (UNC Chapel Hill)

Session Classification: Tuesday Morning