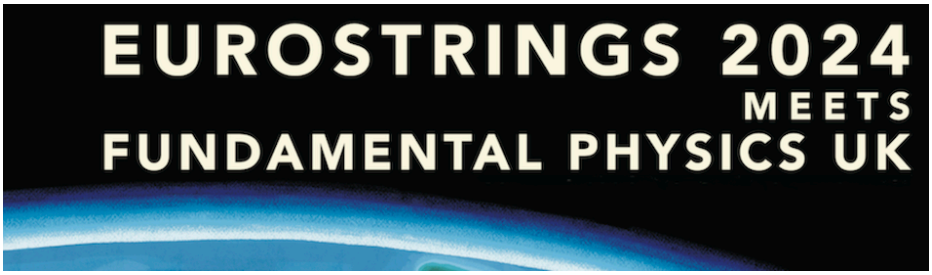

Contribution ID: **16** Type: **Talk in parallel session**

Logarithmic soft graviton theorems from superrotation Ward identities

Wednesday 4 September 2024 11:30 (20 minutes)

The study of infrared structure of gauge and gravity theories has gained renewed interest in recent years. This was possible after the seminal works of Strominger et al. unraveling relations between the so-called soft theorems and asymptotic symmetries. For the case of gravity theory, these relations also helped pave the way for celestial holography. In the last decade, these relations have been studied extensively and understood well at tree level. In this talk, I will present our work 2309.11220 where we extend this relation to one loop level. At this level, already for the soft theorem ambiguities appear. We resolve this ambiguity by noticing an equivalence between infrared corrections and newly found logarithmic corrections to soft theorems. We then present how the loop corrections can be related to the superrotation Ward identities thus confirming the relation at all orders in perturbation theory.

Link to publication (if applicable)

https://link.springer.com/article/10.1007/JHEP02(2024)120

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