ICTS-String Theory Seminar

Title : Status of Soft Theorem in D=4

(Its classical limit and understanding as Ward identity)

Speaker : Biswajit Sahoo, HRI, Allahabad

Date : Thursday, October 31, 2019

Time : 4:00 PM

Venue : Emmy Noether Seminar Room

Abstract : In recent years we explored the understanding of the soft factorization property of the S-matrix for a theory containing massless particles(photon/graviton) when the energy of external massless particles is small (soft particles). Though the leading factorization is discovered long ago (1965) by Weinberg, it's understanding in the subleading order (for all loop order in S-matrix) was not much explored prior to our (with Sen) work due to the infrared divergence of S-matrix in D=4. For loop corrected S-matrix, we found that the subleading soft factorization contains terms logarithmic in soft energy. The classical limit of this logarithmic terms in the soft graviton theorem provides a new classical tail memory with the known permanent shift between the mirrors of the gravitational wave detector. Currently, we are trying to understand whether this soft expansion can be understood as the Ward identity of any asymptotic symmetry.