Gravitational Geometry and Dynamics (GGD) Group Seminar

Null Surface Thermodynamics

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We establish that boundary degrees of freedom associated with a generic co-dimension one null surface in D dimensional pure Einstein gravity naturally admit a thermodynamical description. We expect the null surface thermodynamics to universally follow as a result of the diffeomorphism invariance of the theory, not relying on other special features of the null surface. Using standard surface charge analysis and covariant phase space method, we formulate laws of null surface thermodynamics which are local equations over an arbitrary null surface. This thermodynamical system is generally an open system and can be closed only when there is no flux of gravitons through the null surface. Our analysis extends the usual black hole thermodynamics to a universal feature of any area element on a generic null surface. We discuss the relevance of our study for the membrane paradigm and black hole microstates.

Wednesday, February 2nd 2022, 14H30 || online
Zoom Meeting ID: 852 8915 0495 || https://videoconf-colibri.zoom.us/j/85289150495
Please contact: pvcunha@ua.pt or herdeiro@ua.pt to ask for the Zoom password

More information about the GGD group and seminars in gravitation.web.ua.pt

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