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## Differential geometry with SageMath and applications to gravity

The open-source Python-based computer algebra system SageMath [[1]] has some differential geometry and tensor calculus capabilities, which have been implemented through a community effort – the SageManifolds project [[2]]. I shall briefly present the project and illustrate it by various examples relevant to relativistic gravity, among which the demonstration that the Poincaré horizon of AdS spacetime is a degenerate Killing horizon and the dynamics of a Nambu-Goto string in a 5-dimensional Kerr-AdS spacetime for the gauge-gravity duality approach of the quark-gluon plasma.

1. <https://www.sagemath.org/>
2. <https://sagemanifolds.obspm.fr/>

**Primary author:** Dr GOURGOULHON, Eric (Laboratoire Univers et Theories (LUTH) / Observatoire de Paris)

**Presenter:** Dr GOURGOULHON, Eric (Laboratoire Univers et Theories (LUTH) / Observatoire de Paris)