Spinor-helicity variables for cosmological horizons in de Sitter space

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Abstract: We consider massless fields of arbitrary spin in de Sitter space. We introduce a spinor-helicity formalism, which encodes the field data on a cosmological horizon. These variables reduce the free S-matrix in an observer's causal patch, i.e., the evolution of free fields from one horizon to another, to a simple Fourier transform. We show how this result arises via twistor theory, by decomposing the horizon ↔ horizon problem into a pair of (more symmetric) horizon ↔ twistor problems.

References

[1] Adrian David, Nico Fischer, Yasha Neiman, Spinor-helicity variables for cosmological horizons in de Sitter space, Phys. Rev. D **100**, 045005.