Cosmological Graphs from Scattering Amplitudes

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We analyze cosmological (in-in) correlators and the wave function of the universe in dS at tree and loop levels. We demonstrate a hidden simplicity in the structure of in-in correlators arising by adding various building blocks, which allows us to obtain a new integral representation for the in-in correlators in terms of scattering amplitudes in flat space. Therefore, enabling us to study cosmological graphs by exploiting amplitude tools and derive new relations for in-in correlators. Since dS wave functions are equivalent to AdS correlators by analytic continuation, a part of the analysis is also valid for AdS correlators.