Do we have a chance for renormalizable and unitary quantum gravity?

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The main difficulty of perturbative quantum gravity (QG) in 4d is the conflict between renormalizability and unitarity. The simplest version of QG is based on General Relativity and is non-renormalizable. One can construct renormalizable and even superrenormalizable versions of QG by introducing higher derivatives, but then one has to deal with the unphysical higher derivative massive ghosts. The non-polynomial models of QG have no ghosts at the tree level, but taking loop corrections into account one meets infinite amount of ghost-like complex states. The same is true for the string-induced gravitational action, which requires an infinite amount of fine-tuning to become ghost-free.
At the same time, the polynomial superrenormalizable versions of QG with complex poles have an attractive feature to be unitary within the Lee-Wick approach. These theories have unambiguous and exactly calculable beta-functions and even can be made finite. An interesting open question is whether these theories can be tested experimentally.