

In this article, one-loop contributions to scattering amplitudes of super Yang-Mills theory and supergravity for certain cases, namely, for those amplitudes that are called the next-to-next maximally helicity violating (NNMHV) amplitudes, are carefully evaluated. To be more specific, one-loop contributions to n -point NNMHV scattering amplitudes (where helicity configuration is given by 3-negative and $(n - 3)$ -positive helicities) of $\mathcal{N} = 4$ super Yang-Mills theory and $\mathcal{N} = 8$ supergravity are calculated. Explicit calculations of box coefficients, which appear in the spinor-helicity formalism, are carried out for the two theories. One of the intriguing results is that the NNMHV box coefficient can be expressed in a form that is manifestly covariant under dual superconformal symmetry, a recently reported novel symmetry in the scattering amplitudes of super Yang-Mills theory. Evaluation of the one-loop contributions to gravity amplitudes is more involving but the author manages to execute it by introducing ordered box coefficients and sums over permutations of the external legs.