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## Maximally twisted eleven-dimensional supergravity

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We perform the maximal twist of eleven-dimensional supergravity. This twist is partially topological and exists on manifolds of  $G_2 \times SU(2)$  holonomy. Our derivation starts with an explicit description of the Batalin-Vilkovisky complex associated to the three-form multiplet in the pure spinor superfield formalism. We then determine the  $L^\infty$  module structure of the supersymmetry algebra on the component fields. We twist the theory by modifying the differential of the Batalin-Vilkovisky complex to incorporate the action of a scalar supercharge. We find that the resulting free twisted theory is given by the tensor product of the de Rham and Dolbeault complexes of the respective  $G_2$  and  $SU(2)$  holonomy manifolds as conjectured by Costello.

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