

Compact manifolds with the exceptional holonomy group  $G_2$  can be used in M-Theory to geometrically engineer 4D theories with minimal supersymmetry, as well as 3D  $N=2$  theories from type II strings. I will review recent progress in the construction of such geometries, the associated physics, and dualities between compactifications. By exploiting various fibration structures, I will show to find large classes of M-Theory/heterotic duals, as well as examples of  $G_2$  mirrors in the context of type II strings.