All rigid N=2 supersymmetric backgrounds

In this talk we will discuss how to classify (up to discrete identifications) all rigid 4D N=2 supersymmetric backgrounds in both Lorentzian and Euclidean signatures that preserve eight real supercharges. These include backgrounds such as warped $S_3 \times \mathbb{R}$, warped $AdS_3 \times \mathbb{R}$, and $AdS_2 \times S^2$, as well as some more exotic geometries. I will also address how to construct all supersymmetric two-derivative actions involving hypermultiplets and vector multiplets in these backgrounds.