Cones, spinors, and supersymmetry

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Abstract
I will summarise work in progress (but almost finished) with Joan Simon (at UPenn) and Felipe Leitner (at Leipzig) concerning the classification of so-called Freund–Rubin backgrounds in string theory. I will show that this problem is equivalent to the classification of local metrics in low dimension (either lorentzian or riemannian) admitting Killing spinors. These in turn are related to the classification of certain metric cones with prescribed holonomy. If there is time/interest I will talk about the physical interpretation of some of the solutions we find.