Fake $G_2$ instantons

There is a lot of interest these days in instantons on manifolds with special holonomy. Unfortunately, one lacks examples to test ideas. Recently, various efforts have produced moduli spaces of instantons on some $\text{Spin}(7)$ and $G_2$ manifolds. Here we produce some moduli spaces of $G_2$ instantons on the product circle with a Calabi-Yau. Because this manifold has holonomy strictly in $G_2$, we call them “fake.” This result is part of a joint project with Aaron Smith and Spiro Karigiannis.