

G₂-instantons on Joyce-Karigiannis Manifolds

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Abstract: Joyce constructed compact G₂-manifolds through the generalised Kummer construction on T^7 . Walpuski constructed G₂-instantons on these manifolds by gluing flat connections on the orbifold to pullbacks of ASD-instantons on the gluing region. In 2017, Joyce and Karigiannis explained a further generalisation of the Kummer construction that can resolve orbifold singularities on non-flat orbifolds. In the talk, I will review the construction of Joyce and Karigiannis and present one simplification of the proof of existence of a torsion-free G₂-structure. I will then explain how to construct G₂-instantons on these manifolds by gluing together G₂-instantons on the orbifold and Fueter sections and will present one example of this construction.