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**Jason D Lotay\*** ([j.lotay@ucl.ac.uk](mailto:j.lotay@ucl.ac.uk)). *Laplacian flow in  $G_2$  geometry.*

A key challenge in Riemannian geometry is to find Ricci-flat metrics on compact manifolds, which has led to fundamental breakthroughs, particularly using geometric analysis methods. All non-trivial examples of such metrics have special holonomy, and the only special holonomy metrics which can occur in odd dimensions must be in dimension 7 and have holonomy  $G_2$ . I will describe recent progress on a proposed geometric flow method for finding metrics with holonomy  $G_2$ , called the Laplacian flow. This is joint work with Yong Wei (University College London). (Received January 28, 2016)