

# Geometric flows of $G_2$ -structures

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## **Abstract**

We will discuss a family of flows of  $G_2$ -structures on seven dimensional Riemannian manifolds. These flows are negative gradient flows of natural energy functionals involving various torsion components of a  $G_2$ -structure. We will prove short-time existence and uniqueness of solutions to the flows and a priori estimates for some specific flows in the family. Time permitting, we will discuss some problems for the future. This talk is based on an upcoming joint work with Panagiotis Gianniotis and Spiro Karigiannis.