

# Adiabatic limits of $G_2$ structures

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In the first part of the talk we will review background in the theory of metrics of exceptional holonomy  $G_2$  on 7-dimensional manifolds and in particular a variational point of view, due to Hitchin. We will then define “Kovalev-Lefschetz” by K3 surfaces and explain that there is an adiabatic limit of the  $G_2$  holonomy condition which, locally, takes the form of the maximal submanifold equation in a space of indefinite signature. We will also discuss boundary value problems and possible relevance to uniqueness questions.

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