

# The $G_2$ Laplacian flow

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# Outline

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- **Introduction**

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- **Outlook**

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- Critical points: **strict local maxima** (modulo diffeomorphisms)

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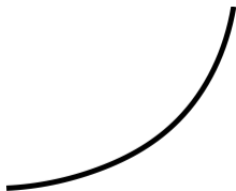
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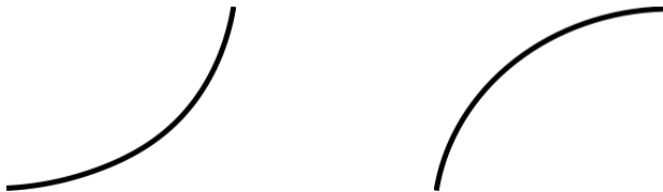


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- *Non-trivial compact Laplacian solitons?*

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- further study of volume functional

# Summary

## The $G_2$ Laplacian flow

- method to try to deform closed  $G_2$  structures to torsion-free
- gradient flow of volume functional
- critical points are strict maxima and stable

## Recent results

- Solitons: non-compact examples, compact non-existence results
- extremally Ricci pinched  $\rightsquigarrow$  eternal solutions
- reductions to 3D & 4D  $\rightsquigarrow$  strong long-time existence results

## Future study

- finite-time singularities
- links to calibrated geometry
- further study of volume functional
- flow with conical singularities or boundary