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## Polytopic dG-based level-set shape optimization

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The well-established level-set shape optimisation method is based on the implicit description of domain boundaries as zero-level sets of a level-set function. Within this framework, domains are updated by evolving the level-set function according to a Hamilton-Jacobi equation, which itself comprises shape gradients as velocity terms.

The common approach is to employ standard finite elements to compute shape gradients and either finite elements of finite differences to solve the relevant Hamilton-Jacobi equation. In this talk, we present a different approach based on polytopic discontinuous Galerkin methods and explore its potential in terms of stability and accuracy.

**Authors:** PAGANINI, Alberto (University of Leicester); Prof. GEORGOULIS, Emmanuil H. (Heriot-Watt University and National Technical University of Athens); Mr FERNANDES, Raphael (University of Leicester)

Presenter: PAGANINI, Alberto (University of Leicester)

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