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*A high-order accurate mimetic discretization of the Eikonal equation with Soner boundary conditions*

High-order accurate Castillo-Grone mimetic gradients are for adapted for solving the Eikonal equation with Soner boundary conditions. An iterative method based on the linearization of a variational formulation is proposed. The method reduces at each step the absolute error (infinity norm). The accuracy of the solution is several orders of magnitude much better than the accuracy than the one achieved by Sethian's first-order Fast Marching method (see the attached figure).

Joint work with Jorge Eliecer Ospino Portillo.