Structural optimization by the level set method

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This is a joint work with F. Jouve and A.-M. Toader.

We study a level-set method for numerical shape optimization of elastic structures. Our approach combines the level-set algorithm of Osher and Sethian with the classical shape gradient of Murat and Simon. Although this method is not specifically designed for topology optimization, it can easily handle topology changes. It works for a very large class of objective functions not restricted to linear elasticity and compliance. Its cost is moderate since the shape is captured on a fixed Eulerian mesh.