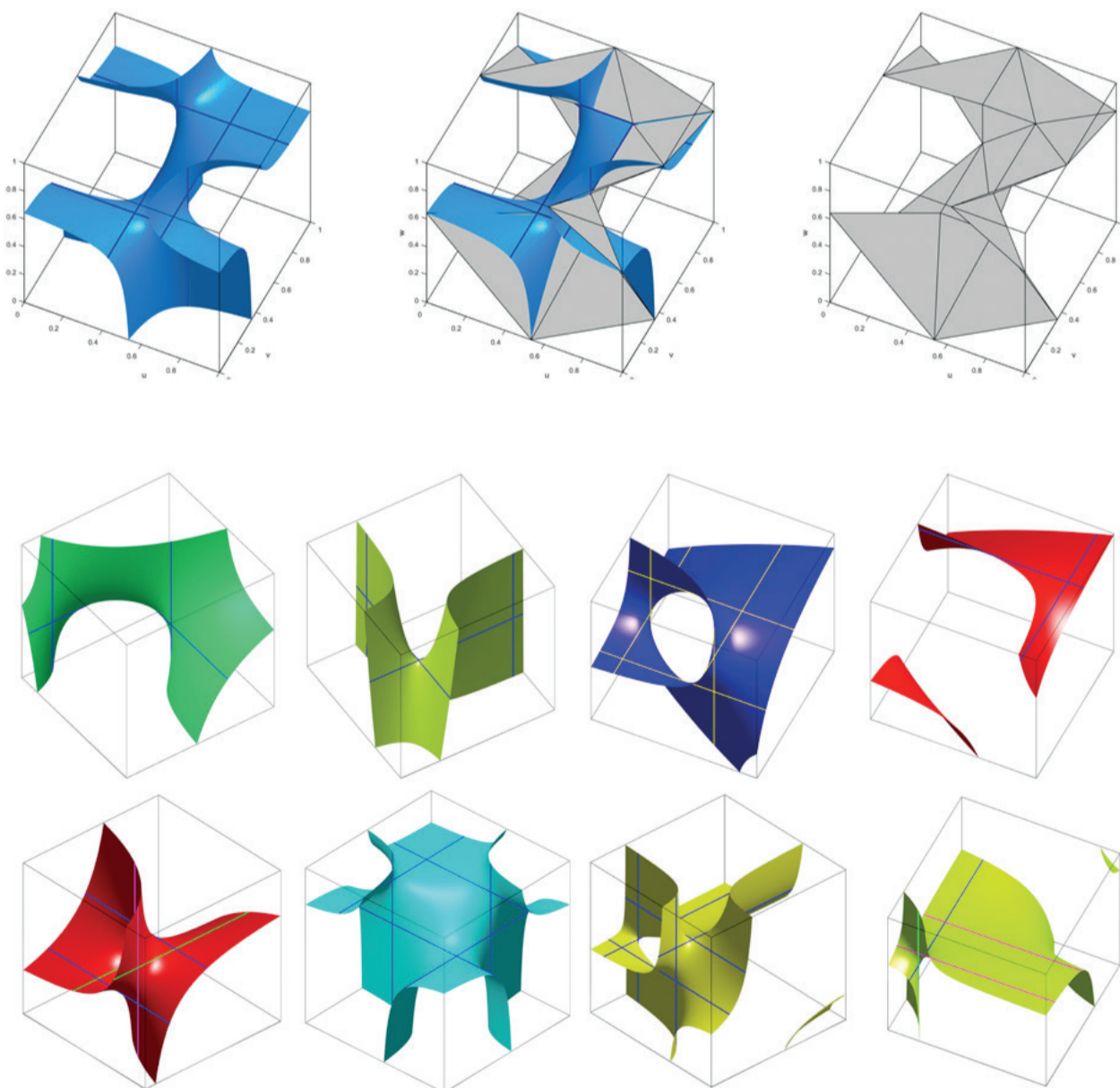


Efficient Construction of Topologically Correct and Manifold Isosurfaces

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We present an algorithm to extract topologically correct and manifold isosurfaces from volume data. We show how to describe the geometry and topologically classify the intersection of the level set with a reference unit cell. The solutions of three quadratic equations are used to correctly triangulate the level set within the cell satisfying the conditions imposed by the asymptotic decider.

This way the triangulation of isosurfaces across cell borders is manifold and topologically correct. Finally, we briefly describe a GPU implementation of the algorithm.