BBTR: an unstructured triangular mesh generator

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Abstract

In this paper we give a detailed description of the use of a Matlab® triangular mesh generator called BBTR. This code offers many features for an implementation of a finite element code. Particular attention has been paid to the generality of the polygonal domains that the triangulator can deal with. General non convex polygonal domains, as well as domains with holes, internal constrained segments and sharp angles of the boundary, can be successfully processed by BBTR. Moreover, suitable algorithms have been implemented to ensure a good quality of the mesh, controlling the angles of the elements. Suitable data structures produced by the mesh generator allow to set general boundary conditions.

The code BBTR results to be a quite general and efficient triangular mesh generator.

Key words. Mesh generation, Delaunay triangulations, constrained Delaunay triangulations, Planar Linear Straight Graphs.

AMS subject classifications. 65M30, 65N50, 97U30, 68-00