Abstract

Most of numerical studies in naval hydrodynamics are based on the theory of singularities. The problem is solved by a boundary element method (BEM) where the singularity elements are distributed on wet surfaces of bodies. The method allows determining pressure distribution on surfaces and therefore the sea-load exerting on the bodies. This makes surface modeling of bodies be a first important step. The present algorithm of surface modeling is based on surface fitting through a set of data in space. Body surface is represented by panels, which are created following lofting procedure. The procedure starts with creating cubic B-Spline curve network through a given data, refine the panel by interpolation and converts the curve representation from B-Spline to Bézier by multiplicity of knot. Finally, tangent vector at panel nodes and vector normal to the surface are calculated. One proposes to develop an automatic panel generation program (APGP), the objective is fast panel generated and easy to use.