1106-35-160   **Anthony N. Johnson*** (`anthony.johnson@usma.edu`), 601 Swift Road, West Point, NY 10996, and **Theodore V. Hromadka** and **Steven B. Horton**. *Modeling Mixed Boundary Conditions with the Complex Variable Boundary Element Method (CVBEM).*

The Complex Variable Boundary Element Method or CVBEM is a numerical technique that can provide solutions to potential value problems in two or more dimensions by use of an approximation function that is derived from the Cauchy Integral in complex analysis. Given potential values (*i.e.*, a Dirichlet problem) along the boundary, the typical problem is to develop a potential function to solve the governing Laplace equation. In this approach, it is not necessary to know streamline values on the boundary. This modeling approach can be extended to problems where the streamline function is needed because there are known streamline values along the boundary (*i.e.*, a mixed boundary value problem). Two common problems that have such conditions are insulation on a boundary, and fluid flow around a solid obstacle. A demonstration problem of fluid flow is included to illustrate the flownet development capability. (Received August 01, 2014)