1176-00-241 **Morgan A. Brown*** (morgan.brown@westpoint.edu), **Morgan V. Brown** and **Bryce D. Wilkins**. *Implementing the Complex Variable Boundary Element Method with Specialty Basis Functions.* Preliminary report.

The Complex Variable Boundary Element Method (CVBEM) for solving boundary value problems of the Laplace type can be implemented using any analytic complex variable function family as a source of basis functions. The accuracy of the resulting CVBEM model depends on the specific basis functions family used to generate the approximation function. Therefore, a recent topic of research has been to examine the particular basis functions used in the CVBEM approximation function, including assessing the possible use of different specialty analytic complex variable functions, such as the Polygamma functions and Hurwitz Zeta function. This talk will examine the details of implementing these specialty basis functions with the CVBEM and assess their utility with respect to modeling several benchmark potential flow problems incorporating the computational difficulty of modeling potential flow in stagnation points. The computational solutions produced by the CVBEM are of interest in relation to modeling explosions, their shock wave transport, and the subsequent movement of material. (Received January 24, 2022)