1117-65-411 **Jason S Howell*** (howelljs@cofc.edu), Department of Mathematics, 66 George St., Charleston, SC 29424. *Prestructuring sparse matrices with dense rows for direct solvers.*

The presence of a dense row in an otherwise sparse coefficient matrix may significantly affect the performance of modern direct solvers for large sparse linear systems. In this work we describe how an unconventional application of a null space method can be utilized to eliminate a small number of dense rows while preserving the overall sparsity of the matrix. This results in a prestructuring technique, i.e. a method that seeks to modify the nonzero structure of the matrix with the intent of realizing gains in direct solver performance. (Received January 18, 2016)