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Michael Cheng* (dfcheng3@yahoo.com), 106 New Scotland, Albany, NY 12208, and **Tzu-chu Lin.** *Wavelet Collocation Solution to Boundary Integral Equation on a Domain with Corners.* Preliminary report.

We solve the boundary integral equation on an open wedge using multiwavelet based collocation methods. When the solution to the BIE possess singular derivatives at the corner, we regain the optimal convergent rate $O(h^m)$ and obtain a sparse stiffness matrix by introducing a parameter to the original BIE and by using wavelet as basis. Numerical examples on how the convergent rate varies with the different parameter values and with different levels of splitting for the BIE on an open wedge are given. The sparse pattern of the stiffness matrices are observed and there are only at most $O(n^{(1 + (1/(2(m+1))))} \log(n))$ significant entries for matrices results from the collocation method. (Received August 27, 2007)