

1116-35-2388

**Giles Auchmuty** and **Manki Cho\*** (lovetocmk@gmail.com), Department of Houston,  
University of Houston, Houston, TX 77024. *Analysis of Steklov representations of solutions of  
Laplace's equation with singularity.*

This talk will describe the analysis of the boundary integral kernels that represent solutions of Laplace's equation subject to various boundary data. These solutions are approximated by the Steklov expansions for harmonic functions in terms of harmonic Steklov eigenfunctions. The special case of harmonic functions with singularity on a rectangle in the plane is investigated, and very rapid decay of the Steklov coefficients is found. The analysis shows that these approximations converge very rapidly away from the boundary of the domain. (Received September 23, 2015)