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The theory surrounding the classical single layer potential operator defined by its kernel

$$\Delta K_0 = \delta$$

is well understood. However the related high frequency single layer potential operator defined by

$$(\Delta + \lambda^2)K_\lambda = \delta$$

has been less thoroughly studied. This operator appears when reconstructing eigenfunctions from boundary data and therefore has applications to the numerical production of eigenfunctions. In this talk I will discuss L^2 estimates on this single layer potential operator seen as an operator from the boundary to the interior of a domain. This is joint work with Xiaolong Han. (Received August 13, 2013)