

Surface Charge Integral Equations Using Weak Form

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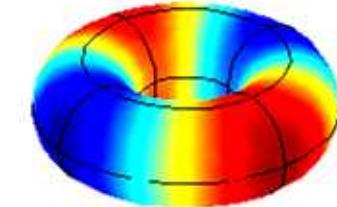
Surface charge integral equations (SCIE)

- Surface integral eigenvalue equation for surface charge [3]:

$$\underbrace{\oint K(s, s') u(s') dS'}_{\text{Input as Boundary Integration Variable (sigaint)}} = \lambda u(s) \quad \underbrace{\text{Input as } -u_{\text{time}}}_{\text{}}$$

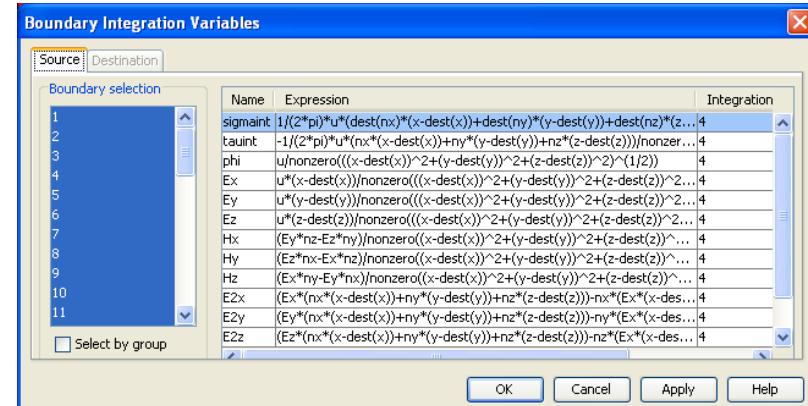
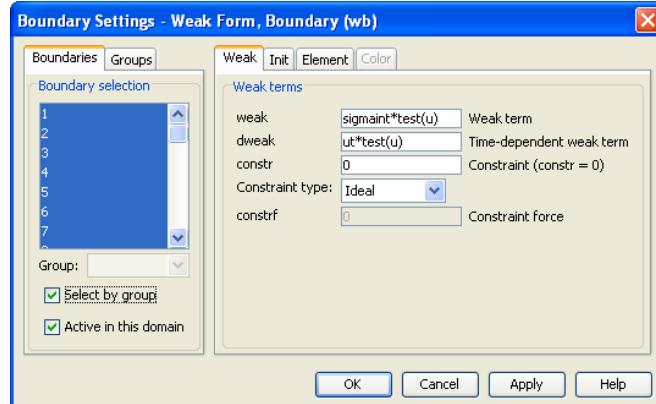
Input as Boundary Integration Variable (sigaint)

Quadrupole plasmon resonance of a nanoring (surface charge method [3])



- Purely integral (Fredholm) equation? Not a problem for weak modes!

$\text{sigaint}^* u_{\text{test}} = -u_{\text{time}}^* u_{\text{test}}$



[3] Mayergoyz I.D., Fredkin D.R., Zhang Z., Phys. Rev. B **72**, 155412 (2005)