??
$_forward.eps$
$D \subset^2_+ =$
$\{(x_1, x_2)^T \in^2:$
$x_2 >$
$0\}$
ν
$^D_0 =$
$\{(x_1, x_2)^T \in^2:$
$x_2 =$
$0\}$
x_s
$q \in^2$
(x, x_s)
$x_r \in_0$
$u_q(x_r, x_s) =$
$u^s_q(x_r, x_s) +$
$(x_r, x_s)q, x_r \in_0$
$u^s_q(x, x_s)$
$\Delta_e u^s_q(x, x_s) +$
$\rho\omega^2 u^s_q(x, x_s) =$
$0^2_+ \bar{D},$
$u^s_q(x, x_s) =$
$-(x, x_s)q_D,$
$\sigma(u^s_q(x, x_s))e_2 =$
$0_0, {}_i$
x_i
$i =$
$1, 2$
$u^s_q(x_r, x_s)$
D
??
$2\times$
2
$^d_0 =$
$\{(x_1, x_2)^T \in_0:$
$x_1 \in$
$(-d, d)\}$
(x, y)
y
$d >$
0
$_d(x, y)$
$x, y \in^2_+$
$(x, y)\chi_{(-d,d)}$
0
$\chi_{(-d,d)}$
$(-d, d)$
$_d(x, y)e_j, j =$
$1, 2,$
$_e[_d(x, y)e_j] +^2$
$[_d(x, y)e_j] =$
$0^2_+,$
$_d(x, y)e_j =$
$[\overline{(x, y)}e_j]\chi_{(-d,d)0}., \in^2_+$
$_d(z, y)]_{ij} =$
$e_i.$
$[_d(z, y)e_j]$
$\overline{\int_{^d_0} {}_D(x, z)e_i}.$
$\overline{(x, y)}e_j ds(x), i, j =$
$1, 2._d(z, y) =$
$\int_{^d_0} {}_D(x, z)^T\overline{(x, y)}ds(x).$
??
??
??
$d \to$
∞
$_d(z, y)$
$(x, y) \in^{2\times 2}$
$x, y \in^2_+$
$\int_0 {}_D(x, z)^T\overline{(x, y)}ds(x).(z, y) =$
$\lim_{\to 0^+} \int_0 {}^{\omega(1+\imath)}_D(x, z)^T\overline{_{(1+\imath)}(x, y)}ds(x), {}^{\omega(1+\imath)}_D(x, z)q =$
$\sigma(_{(1+\imath\omega)}(x, z)q)e_2, \forall q \in^2$
??
??
??
$\overline{}(z, y) =$
$2\pi \sum_{,\beta=p,s} p.v. \int \frac{(\xi)^T\overline{(\xi)}}{\overline{\delta(\xi)}} e^{\imath(\mu_\alpha z_2 - \overline{\mu}_\beta y_2) + \imath(y_1 - z_1)\xi} d\xi - \frac{1}{2} \sum_{,\beta=p,s} \left[\frac{(\xi)^T\overline{(\xi)}}{\overline{\delta'(\xi)}} e^{\imath(\mu_\alpha z_2 - \overline{\mu}_\beta y_2) + \imath(y_1 - z_1)\xi} \right]^{k_R}_{-k_R}.$
$\frac{1}{2\pi} \int_{-k_p}^{k_p} \frac{(\xi)^T\overline{(\xi)}}{\overline{\delta(\xi)}} e^{\imath\mu_p(z_2 - y_2) + \imath(y_1 - z_1)\xi} d\xi$