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LIST OF SYMBOLS

$o-xyz$	-	body axis
z_G	-	centre of gravity
$O - XYZ$	-	space coordinate system
t	-	time factor
ψ_0	-	yaw angle
$X_0(t)$	-	ship position in longitudinal direction
$Y_0(t)$	-	ship position in transverse direction
χ	-	angle of incidence wave
g	-	acceleration of gravity
$G(P,Q)$	-	Green's function
L	-	ship length
B	-	ship breadth
D	-	ship draft
L_{pp}	-	length between perpendicular
ϕ_I	-	time dependent incident waves potential
\Re	-	real number
3D	-	three dimensional
2D	-	two dimensional
A	-	amplitude of incident waves
i	-	complex number
ω	-	wave frequency of incident waves
ν	-	wave number of incident waves
$P(t)$	-	phase shift due to lateral drift
\dot{X}_0	-	time differentiation due of longitudinal position

\dot{Y}_0	-	time differentiation of transverse position
$\dot{\psi}_0$	-	time differentiation of yaw angle
ω_e	-	frequency of encounter
ω_{e0}	-	frequency of encounter due to change in lateral drift
U^*	-	averaged forward velocity
β_0	-	drift angle
U_0	-	forward velocity
V_0	-	lateral velocity
\dot{U}	-	time differentiation of forward Velocity
\dot{V}	-	time differentiation of lateral Velocity
φ_w	-	time independent incident waves potential
φ	-	scattering and radiation potential due to ship motion
$\Phi(x, y, z, t)$	-	perturbation potential around the ship
Φ_r	-	time dependent radiation potential
ξ_i	-	time independent ship oscillation
ξ_i'	-	nondimensionalized time independent ship oscillation
α	-	vector of motion displacement
Ξ_i	-	time dependent motion displacement
ϕ_1	-	time dependent roll motion
θ_1	-	time dependent pitch motion
ψ_1	-	time dependent yaw motion
n_i	-	outward normal unit vector of ship hull
N_i	-	outward normal unit vector in 2D
k	-	order of ship motion problem
μ	-	coefficient due to change in lateral drift
ν	-	Rayleigh viscosity coefficient
$\varphi^{(1)}$	-	velocity potential O(1)
β_j	-	motion coefficient
φ_j	-	radiation potential

φ_4	-	scattering potential
φ_s	-	simplified scattering potential
φ_I	-	simplified time independent incident waves potential
$M_{\ell j}$	-	2D added mass coefficient
$N_{\ell j}$	-	2D damping coefficient
E_j	-	2D exciting force
\bar{A}_{ij}^{2D}	-	2D nondimensionalized added mass coefficient
\bar{B}_{ij}^{2D}	-	2D nondimensionalized damping coefficient
A_{ij}	-	3D added mass coefficient for motion equation
B_{ij}	-	3D damping coefficient for motion equation
C_{ij}	-	3D hydrostatic restoring force coefficient for motion equation
\bar{A}_{ij}	-	3D nondimensionalized added mass coefficient
\bar{B}_{ij}	-	3D nondimensionalized damping coefficient
F_{2c}	-	3D real exciting force for sway
F_{2s}	-	3D imaginary exciting force for sway
F_{3c}	-	3D real exciting force for heave
F_{3s}	-	3D imaginary exciting force for heave
F_{4s}	-	3D imaginary exciting force for roll
T_ϕ	-	roll period
∇	-	ship displacement
\overline{KM}	-	vertical distance between keel and metacentre
k_{xx}	-	moment of inertia about x -axis
k_{yy}	-	moment of inertia about y -axis
H_w	-	wave height

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