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LIST OF ABBREVIATIONS

Al	Aluminium
AR	Autoregressive
ARIMA	Autoregressive Integrated Moving Average
AWGN	Additive White Gaussian Noise
BEM	Boundary Element Method
CWT	Continuous Wavelet Transform
D4	Daubechies order 4
DOF	Degree of Freedom
DWT	Discrete Wavelet Transform
EFIT	Elastodynamic Finite Integration Technique
FCM	Finite Cell Method
FDM	Finite Difference Method
FEM	Finite Element Method
FFT	Fast Fourier Transform
FT	Fourier Transform
FVM	Finite Volume Method
HHT	Hilbert-Huang transforms
HP	High Pass
HT	Hilbert Transform
IDWT	Inverse Discrete Wavelet Transform
LISA	Local Interaction Simulation Approach
LP	Low Pass
MA	Moving Average
MFT	Matched Filter Technique
MP	Matching Pursuit
NDT&E	Non-Destructive Testing & Evolution
NS	Non-Standard
PDEs	Partial Differential Equations
PVDF	Polyvinylidene Fluoride
PZT	Piezoelectric lead Zirconate Titanate
RHP	Reverse High Pass
RLP	Reverse Low Pass

RMSE	Root Mean Square Error
SBFEM	Scaled Boundary Finite Element Method
SCM	Spectral Cell Method
SEM	Spectral Element Method
SHM	Structural Health Monitoring
SIM	Sharp Interface Model
SNR	Signal-to-Noise Ratio
STFT	Short Time Fourier Transform
ToF	Time of Flight
WMFM	Wavelet Matched Filter Method
WT	Wavelet Transform
WVD	Wigner-Ville Distribution

LIST OF SYMBOLS

A_0	Fundamental anti-symmetric Lamb modes
(c_p)	Phase velocity
(c_g)	Group velocity
$c_{j,k}$	Scaling coefficients
C_L and C_T	Longitudinal and shear velocity
$d_{j,k}$	Wavelet coefficients
E	Young’s Modulus
f_x and f_y	Body forces
h	Mesh size
k	Circular wave number
$[K]$	Stiffness matrix
$[M]$	Mass matrix
P_j	Projection onto the space V_j
Q_j	Projection onto the space W_j
r	Correlation coefficent
S_0	Fundamental symmetric Lamb modes
$[T_j]$	Wavelet transformation matrix
u_x	Velocity in X-direction
u_y	Velocity in Y-direction
$[u]$	Unknown coefficient vectors
$[\ddot{u}]$	Unknown coefficient vectors
V_i	Space spanned by a set of scaling function
W_i	Space spanned by a set of wavelet function
$\overline{x}$	Mean of original signal
Δx	Element size
$\overline{y}$	Mean of denoised signal

ν	Poisson ratio
σ_{xx} and σ_{yy}	Normal stresses
τ_{xy}	Shear stress
λ and μ	Lamé constants
λ_{wave}	Wavelength
ϕ	Scaling function
ψ	Wavelet function
ω	Circular frequency