Supplementary Material

Dispersion Characteristics of Love-Type Waves in Composite Structures with Imperfect Interfaces

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S1. Material Parameters Used in Numerical Computations

Table S1: Material constants of the Prestressed piezoelectric layer [1]

Parameter	**Symbol**	**Value**
Elastic constant	$e_{44}^{(p)}$	27.1 GPa
Piezoelectric constant	$g_{15}^{(p)}$	4.6 C·m^{-2}
Dielectric constant	$\kappa_{11}^{(p)}$	3.6 nF·m^{-1}
Mass density	$\rho^{(p)}$	7800 kg/m^3
Prestressed parameter	P_1	0×10^6, 0.01×10^6, 0.02×10^6
Bonding parameter	Ω	1, 1.00002, 1.00008

Table S2: Material constants of the Prestressed heterogeneous orthotropic layer [2]

Parameter	**Symbol**	**Value**
Elastic constants	M_2	$5.82 \times 10^{10}\ N/m^2$
Elastic constants	N_2	$3.99 \times 10^{10}\ N/m^2$
Mass Density	ρ_0	$4500\ kg/m^3$
Prestressed parameter	P_2	$1 \times 10^{11},\ 4 \times 10^{11},\ 7 \times 10^{11}$
Heterogeneity parameter	α	$0.1,\ 1.9,\ 4.2$

Table S3: Material constants of the Viscous sandy substrate with Hydrostatic Stress [3]

Parameter	**Symbol**	**Value**
Rigidity	μ_3	$3.23 \times 10^{10}\ N/m^2$
Mass density	$\rho^{(s)}$	$2802\ kg/m^3$
Hydrostatic stress	P_3	$0.1\times10^4,\ 0.3\times10^4,\ 0.9\times10^4$
Sandy parameter	ω	$0.01 \times 10^5,\ 0.1 \times 10^5,\ 9.99 \times 10^5$
Internal friction	μ_3'	$0.1 \times 10^{10},\ 0.2 \times 10^{10},\ 0.99 \times 10^{10}$
Irregularity span	s	$0.1,\ 0.12,\ 0.2$
Irregularity depth	H	$0.01,\ 0.005,\ 0.1$

Table S4: Geometric parameters used in all figures

Parameter	**Symbol**	**Default Value**
Prestressed piezoelectric layer	H_1	0.1 m
Prestressed heterogeneous orthotropic layer	H_2	0.1 m
Wave number range	k	1.2–2.5 m^{-1}

References

[1] A. Singhal, R. Tiwari, J. Baroi, R. Kumhar, Waves Random Complex Media, 1 (2022) https://doi.org/10.1080/17455030.2022.2026522

[2] B. Prasad, S. Kundu, P.C. Pal, P. Alam, Arabian J. Geosci. 13, 1 (2020) https://doi.org/10.1007/s12517-020-05354-2

[3] A.K. Singh, K.C. Mistri, A. Das, Waves Random Complex Media 27, 213 (2017) https://doi.org/10.1080/17455030.2016.1213461