**Electronic Supplementary Material**

The normalized variables in Equations (3.1a-g) are

, (A1a)

, (A1b)

, (A1c)

, (A1d)

, (A1e)

, (A1f)

, (A1g)

where  is the normalized Laplacian operator and . The normalized form of (3.2a,b) are

, (A2a)

. (A2b)

Appling the FT followed by the LT (FT-LT) on (A2a,b) and using the initial condition

, (A3a)

yields

$Λ^{4}\overbar{\tilde{E}}-2Λ^{2}\frac{∂^{2}\overbar{\tilde{E}}}{∂Z\_{}^{2}}+\frac{∂^{4}\overbar{\tilde{E}}}{∂Z\_{}^{4}}+Λ^{2}Θ\overbar{\tilde{E}}-Θ\frac{∂^{2}\overbar{\tilde{E}}}{∂Z\_{}^{2}}=0$, (A3b)

$Λ^{2}\overbar{\tilde{S}}-\frac{∂^{2}\overbar{\tilde{S}}}{∂Z\_{}^{2}}=0$. (A3c)

The bounded solution of (A3a,b) is

$\overbar{\tilde{E}}$, (A4a)

$\overbar{\tilde{S}}$, (A4b)

where the ’s  are constants to be determined. Substituting the bounded solutions of (A4a,b) into FT-LT transformation of (A1a-e) gives

$\overbar{\tilde{U}}$, (A5a)

$\overbar{\tilde{W}}$, (A5b)

$\overbar{\tilde{P}}$, (A5c)

$\overbar{\tilde{Σ}}\_{XX}$, (A5d)

$\overbar{\tilde{Σ}}\_{ZZ}$, (A5e)

$\overbar{\tilde{Σ}}\_{XZ}$, (A5f)

$\overbar{\tilde{Ξ}}$. (A5g)

The’s are obtained by imposing the boundary conditions of (2.2a-c). Taking the FT-LT of the boundary conditions gives

$\overbar{\tilde{Σ}}\_{ZZ}$$\overbar{\tilde{W}}$, (A6a)

$\overbar{\tilde{P}}$, (A6b)

$\overbar{\tilde{Σ}}\_{XZ}$, (A6c)

Using (A3b,c,e,f) and (A6a-c), the constants are found to be

, (A7a)

, (A7b)

. (A7c)