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APPENDIX

$$C_1 = 1 + 3\left(\frac{\mu}{E}\right)\left(\frac{l}{h}\right)^2$$

$$C_2 = 12\left(\frac{\mu}{E}\right)\left(\frac{L}{h}\right)^2$$

$$C_3 = -3\left(\frac{\mu}{E}\right)\left(\frac{h}{L}\right)\left(\frac{l}{h}\right)^2$$

$$C_4 = 12\left(\frac{\mu}{E}\right)\left(\frac{L}{h}\right)$$

$$C_5 = 6\left(\frac{L}{h}\right)$$

$$C_6 = \frac{1}{4}\left(\frac{\mu}{E}\right)\left(\frac{h}{L}\right)\left(\frac{l}{h}\right)^2$$

$$C_7 = \left(\frac{\mu}{E}\right)\left(\frac{L}{h}\right)$$

$$C_8 = \frac{1}{4}\left(\frac{\mu}{E}\right)\left(\frac{h}{L}\right)^2\left(\frac{l}{h}\right)^2$$

$$C_9 = \left(\frac{\mu}{E}\right)$$

$$C_{10} = g^2L^2$$

$$C_{11} = \frac{\rho c_E L\epsilon}{K}$$

$$C_{12} = \frac{IT_0\beta^2\epsilon}{EAhK}$$

$$d_1 = \left(C_1(m\pi)^2 + C_2\right)$$

$$d_2 = \left(C_3(m\pi)^3 + C_4(m\pi)\right)$$

$$d_3 = C_5(m\pi)$$

$$d_4 = \left(C_6(m\pi)^3 + C_7(m\pi)\right)$$

$$d_5 = \left(C_8(m\pi)^4 + C_9(m\pi)^2\right)$$

$$d_6 = \left((m\pi)^2 + C_{10}\right)$$

$$a_0 = p_0 d_1 d_6$$

$$a_1 = d_1 d_6$$

$$a_2 = C_{11}d_1 + d_6p_0 + C_{12}d_3\,(m\pi)$$

$$a_3 = d_6 + C_{11}d_1\tau_1 + C_{12}d_3\tau_1\,(m\pi)$$

$$a_4 = C_{11},\ a_5 = C_{11}\tau_1$$

$$b_0 = (-d_2d_4 + d_1d_5)\,d_6p_0$$

$$b_1 = (d_1d_5 - d_2d_4)\,d_6$$

$$b_2 = C_{11}\,(d_1d_5 - d_2d_4) + (d_1 + d_5)\,d_6p_0 + C_{12}d_3d_5\,(m\pi)$$

$$b_3 = d_5d_6 - C_{11}d_2d_4\tau_1 + d_1\,(d_6 + C_{11}d_5\tau_1) + C_{12}d_3d_5\tau_1\,(m\pi)$$

$$b_4 = C_{11}\,(d_1 + d_5) + d_6p_0 + C_{12}d_3\,(m\pi)$$

$$b_5 = d_6 + C_{11}\,(d_1 + d_5)\,\tau_1 + C_{12}d_3\tau_1\,(m\pi)$$

$$b_6 = C_{11}$$

$$b_7 = C_{11}\tau_1$$

PUBLICATIONS AND CONFERENCES

Publication Related to the Thesis:

1. **Bhagwan Singh** and Santwana Mukhopadhyay. "Galerkin-type solution for the Moore-Gibson-Thompson thermoelasticity theory." **Acta Mechanica**, 232(4), 1273-128 (2021). Springer (SCI, **IF: 2.698**)

2. **Bhagwan Singh** and Santwana Mukhopadhyay. "On Fundamental solutions of Moore-Gibson-Thompson (MGT) thermoelasticity theory." **Zeitschrift für angewandte Mathematik und Physik**, 74(3), 105 (2023). Springer (SCI, **IF: 2.0**)

3. **Bhagwan Singh,** Harendra Kumar, and Santwana Mukhopadhyay. "Thermoelastic damping analysis in micro-beam resonators in the frame of modified couple stress and Moore-Gibson-Thompson (MGT) thermoelasticity theories". **Waves in Random and Complex Media**, 1-18 (2021). Taylor & Francis (SCI, **IF: 4.05**)

4. **Bhagwan Singh** and Santwana Mukhopadhyay. "Thermoelastic vibration of Timoshenko beam under the modified couple stress theory and the Moore-Gibson-Thompson (MGT) heat conduction model". (Accepted). **Mathematics and Mechanics of Solids (MMS)**, (2023). Sage (SCI, **IF: 2.6**)

5. **Bhagwan Singh,** Harendra Kumar, and Santwana Mukhopadhyay. "Analysis

of size effects on thermoelastic damping in the Kirchhoff's plate resonator under Moore-Gibson-Thompson thermoelasticity". **Thin-Walled Structures**, 180, 109793 (2022). Elsevier (SCI, **IF: 6.4**)

6. **Bhagwan Singh,** Komal Jangid, and Santwana Mukhopadhyay. "Legendre wavelet method on size dependent bending analysis of nanobeam under nonlocal strain gradient theory". (Communicated to an International Journal).

Publications Apart from Thesis:

1. **Bhagwan Singh**, Manushi Gupta, and Santwana Mukhopadhyay. "On the fundamental solutions for the strain and temperature rate-dependent generalized thermoelasticity theory". **Journal of Thermal Stresses**, 43(5), 650-664 (2020). Taylor & Francis (SCI, **IF: 3.45**)

Conferences and Workshops:

1. Paper presented titled " Thermoelastic damping analysis in micro-beam resonator in the frame of modified couple stress and Moore Gibson Thompson (MGT) thermoelasticity theory in the International Conference on **"Computational Method in Sciences and Engineering" (CMSE-2022)** at BITS-Pilani, Hydrabaad. April 2022

2. Paper presented titled " On the fundamental solutions for the strain and temperature rate-dependent generalized thermoelasticity theory in the International Conference on **"Dynamical Systems, Control and their Applications"** at IIT Roorkee. July 2022

3. Participated in one week National workshop on **"Recent Development in Mathematical Modeling in Engineering Sciences"** organized by Department of Mathematics, NIT, Uttarakhand. December 2021

4. Participated in the International workshop on **"Recent Trends in Applied Mathematics and Research Methodology"** organized by Department of Mathematics, Govt. MGM PG College, Itarsi UP. March 2021

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