

Fig. 7 Variation of transverse stress ($\bar{\tau}_{xz}$) through the thickness of a [0/90/0] laminated plate under sinusoidal load ($a=b=1$; $h/a=0.1$), MAT 1

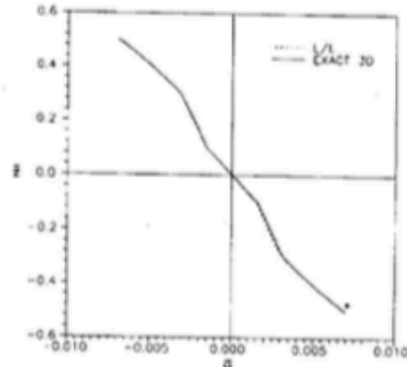


Fig. 8 Variation of in-plane displacement (\bar{u}) through the thickness of a [0/90/0/90/0] laminated plate under sinusoidal load ($a=b=1$; $h/a=0.1$), MAT 1

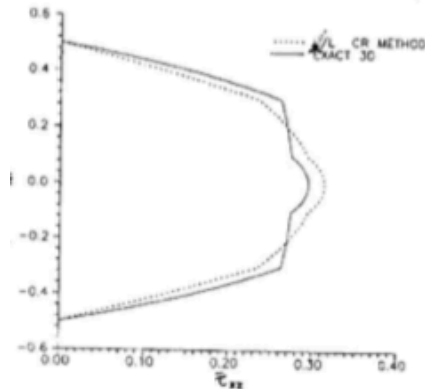


Fig. 9 Variation of transverse shear stress ($\bar{\tau}_{xz}$) through the thickness of a [0/90/0/90/0] laminated plate under sinusoidal load ($a=b=1$; $h/a=0.1$), MAT 1

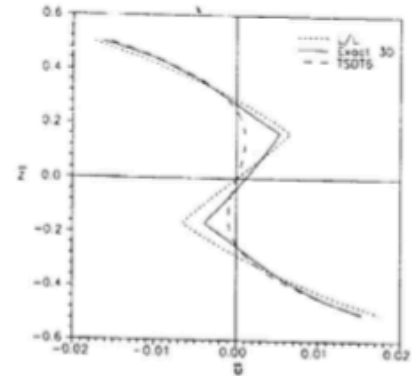


Fig. 10 Variation of in-plane displacement (\bar{u}) through the thickness of a [0/90/0] laminated plate under UDL ($a=b=1$; $h/a=0.25$), MAT 1

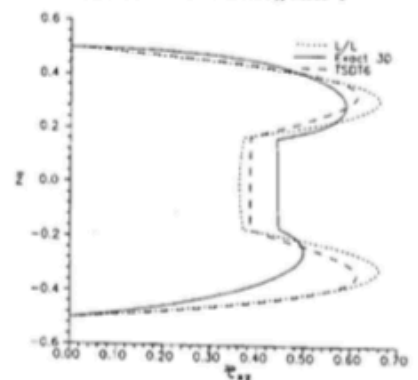


Fig. 11 Variation of transverse shear stress ($\bar{\tau}_{xz}$) through the thickness of a [0/90/0] laminated plate under UDL ($a=b=1$; $h/a=0.25$), MAT 1

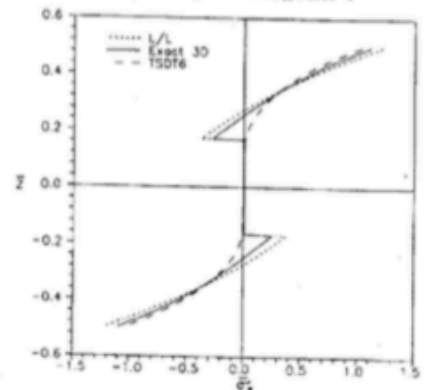


Fig. 12 Variation of transverse shear stress ($\bar{\sigma}_x$) through the thickness of a [0/90/0] laminated plate under UDL ($a=b=1$; $h/a=0.25$), MAT 1



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A zigzag model for laminated composite plates, Journal of Aero. Soc. of India, Vol. 54, No. 4, pp 347-357, November 2002

The image above is from: Arya H., Shimpi R. P., Naik N. K.,

See:

- <https://www.aero.iitb.ac.in/~rpshimpi/>
- <https://rnd.iitb.ac.in/faculty/prof-r-p-shimpi>
- https://www.researchgate.net/profile/Rameshchandra_Shimpi

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Research Interests:

Theory of plates, Finite element method, Optimization techniques, Material testing, Experimental stress analysis, Ultrasonic testing

Selected Publications:

- Krishna Murty AV, Shimpi RP. Vibration of laminated beams. *J Sound Vib* 1974;36:273–284
- Shimpi RP, Ghugal YM. A layerwise trigonometric shear deformation theory for two-layered cross-ply laminated beams. *J Reinf Plast Compos* 1999;18 (16):1516–1543.
- Ghugal YM, Shimpi RP. A trigonometric shear deformation theory for flexure and free vibration of isotropic thick beams. *Structural Engineering Convention (SEC-2000)*, IIT Bombay, India; 2000.
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- R.P. Shimpi and Y.M. Ghugal. A new layerwise trigonometric shear deformation theory for two layered cross-ply beams. *Composite Science and Technology*, 61:1271–1283, 2001.
- Ghugal, Y. M. and Shimpi, R. P., “A Review of Refined Shear Deformation Theories for Isotropic and Anisotropic Laminated Beams”, *Journal of Reinforced Plastics and Composites*, vol. 20, no. 3, 2001, pp. 255-272.
- Ghugal Y. M., Shimpi R. P., “A review of refined shear deformation theories of isotropic and anisotropic laminated plates”, *Journal of Reinforced Plastics and Composites* 21, 2002, 775–813
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- Arya H., Shimpi R. P., Naik N. K., A zigzag model for laminated composite plates, *Journal of Aero. Soc. of India*, Vol. 54, No. 4, pp 347-357, November 2002
- Shimpi RP. Refined plate theory and its variants. *AIAA J* 2002;40(1):137–146
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- Arya H, Shimpi RP, Naik NK. Layer-by-layer analysis of a simply supported thick flexible sandwich beam. *AIAA J* 2002;40(10):2133–2136.
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- Shimpi RP and Ainapure AV. Free vibration of two-layered cross-ply laminated plates using layer-wise trigonometric shear deformation theory. *J Reinf Plast Compos* 2004; 23: 389–405
- Shimpi RP, Patel HG, Arya H. New first order shear deformation theories. *ASME J Appl Mech* 2006;74(3):523–533.
- Shimpi RP, Patel HG (2006) Free vibrations of plate using two variable refined plate theory. *J Sound Vib* 296:979–999
- Shimpi R.P., Patel H.G.: A two variable refined plate theory for orthotropic plate analysis. *Int. J. Solids Struct.* 43, 6783–6799 (2006)
- Shimpi, R. P., Patel, H. G., and Arya, H., 2007, “New First-Order Shear Deformation Plate Theories,” *ASME J. Appl. Mech.*, 74(3), pp. 523–533
- K. Nareen, R. Shimpi Refined hyperbolic shear deformation plate theory, *Proc. Inst. Mech. Eng., Part C, J. Mech. Eng. Sci.*, 229 (2015), pp. 2675-2686
- Rameshchandra P. Shimpi, Rajesh A. Shetty and Anirban Guha, “A single variable refined theory for free vibrations of a plate using inertia related terms in displacements”, *European Journal of Mechanics – A/Solids*, Vol. 65, pp 136-148, September-October 2017
- Kedar S. Pakhare, Rameshchandra P. Shimpi and P. J. Guruprasad, “Buckling Analysis of Thick Isotropic Shear Deformable Beams”, *Proceedings of ICTACEM 2017 International Conference on Theoretical, Applied, Computational and Experimental Mechanics*, December 28-30, 2017, IIT Kharagpur, India

Rameshchandra P. Shimpi, P.J. Guruprasad and Kedar S. Pakhare, "Single variable new first-order shear deformation theory for isotropic plates", Latin American Journal of Solids and Structures, Vol. 15, No. 10, e124, 2018