



Professor Karam Y. Maalawi

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Biography:

Karam Maalawi is professor of aeronautics and mechanics at the Mechanical Engineering Department, National Research Centre in Cairo, Egypt. He obtained his MSC and PhD degrees in aerospace engineering from Cairo University. His primary research interest is in computer based analysis and design of metal and composite structures. He has published extensively in the field of structural optimization and wind turbine design and performance. He supervised many research projects related to wind energy, in particular, the design and manufacture of composite wind turbine blades. His current research is concerned with the optimal design of functionally graded material beams, aircraft wings and wind turbine blades. Dr. Maalawi is a consultant member of the technical committee of energy management systems at the Egyptian Organization for Standardization and Quality.

Selected Publications:

- K. Y. Maalawi and N. M. El Chazly, “Global optimization of multi-element beam-type structures”, in The 2nd international conference on advances in structural engineering and mechanics, ASEM02 (Busan, South Korea), August 21–23 2002.
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- Maalawi K (2002) Buckling optimization of flexible columns. Int J Solid Struct 39(23):5865–5876
- Maalawi KY, Negm HM. Optimal frequency design of wind turbine blades. Journal of Wind Engineering and Industrial Aerodynamics 2002; 90(8):961–986
- Hassan, A.I., Maalawi, K.Y. and Negm, H.M.: Frequency optimization of conical shells under mass equality constraint, J. of App. Sciences Research, 2(11),821–829, 2006.
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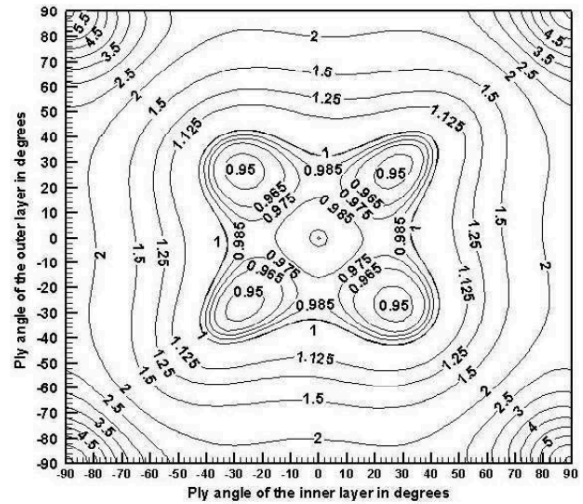


Figure 6. Butterfly-like zone containing the local minimal stability limits in $[\theta_1/\theta_2]$ design space for two-layer, E-glass/vinyl-ester ring ($\hat{h}_1 = \hat{h}_2 = 0.5$).

From: Karam Y. Maalawi, “Optimal buckling design of anisotropic rings/long cylinders under external pressure”, Journal of Mechanics of Materials and Structures, Vol. 3, No. 4, pp 775-793, 2008

Karam Y. Maalawi, "Optimal buckling design of anisotropic rings/long cylinders under external pressure", *Journal of Mechanics of Materials and Structures*, Vol. 3, No. 4, pp 775-793, 2008

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Karam Y. Maalawi, "Use of material grading for enhanced buckling design of thin-walled composite rings/long cylinders under external pressure", *Composite Structures*, Vol. 93, No. 2, January 2011, pp. 351-359

K. Y. Maalawi, Functionally graded bars with enhanced dynamic performance, *J. Mech. Mater. Struct.* 6 (4) (2011) 377–393.

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M.F. Nasr, A.A. El-Zoghby, K.Y. Maalawi, B.S. Azzam and M.A. Badr, "Torsional buckling optimization of composite drive shafts", *World Applied Sciences Journal*, Vol. 33, No. 3, pp 517-524, 2015

Karam Y. Maalawi, "Dynamic optimization of functionally graded thin-walled box beams", *International Journal of Structural Stability and Dynamics*, Vol. 17, No. 9, 1750109, November 2017