



**Professor Moshe Eisenberger**

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Faculty of Civil and Environmental Engineering  
Technion – Israel Institute of Technology, Haifa, Israel

**Education:**

Ph.D.: Stanford Univ., CA, USA 1980

M.Sc.: Stanford Univ., CA, USA 1978

B.Sc.: Civil Eng., Technion 1977

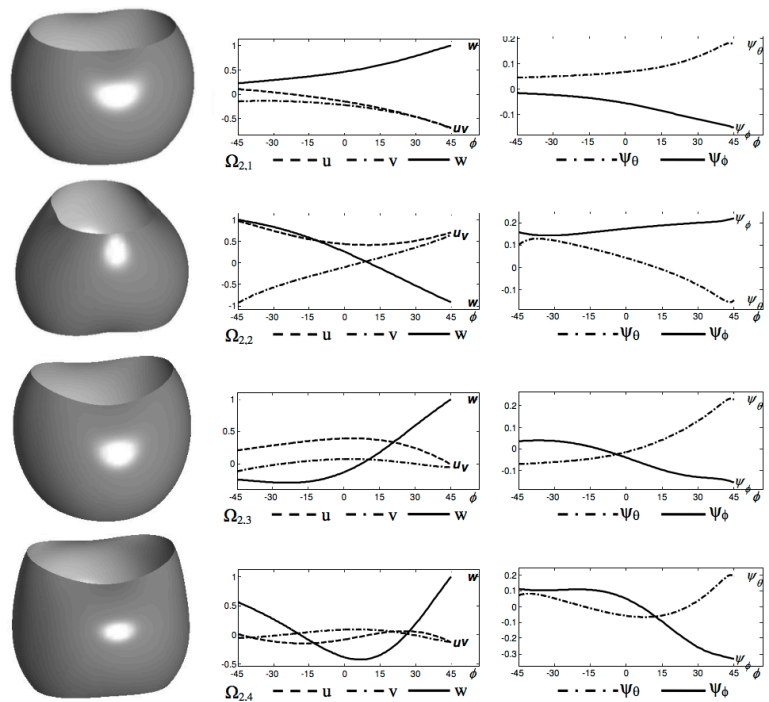
**Research Interests:**

Computational Mechanics; Stability and Buckling; Vibration and Dynamics; Exact Element Method; Beams, Plates, Shells; Functionally Graded Materials; Composite Materials; Smart Materials

**Selected Publications:**

Moshe Eisenberger and David Z. Vankelevsky, “Exact stiffness matrix for beams on elastic foundation”, Computers & Structures, Vol. 21, No. 6, pp 1355-1359, 1985

Eisenberger M, Clastornik J. Beams on variable two-parameter elastic foundation. Journal of Engineering Mechanics, ASCE 1987;113(10): 1454–66



**Figure 7.** Mode shapes of vibrations with two circumferential waves ( $n = 2$ ) of a completely free spherical barrel shell with variable thickness (Figure 3, right).

From: Elia Efraim and Moshe Eisenberger, “Dynamic stiffness vibration analysis of thick spherical shell segments with variable thickness”, Journal of Mechanics of Materials and Structures, Vol. 5, No. 5, pp 821-835, 2010

Eisenberger, M., 'Buckling loads for variable cross-section member with variable axial forces' *Int. J. Solids Struct.* 27 (1991) 135–143.

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Eisenberger M. Vibration frequencies for beams on variable one- and two-parameters elastic foundation. *Journal of Sound and Vibration* 1994;176(5): 577–584

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Eisenberger M, Abramovich H, Shulepov O (1995) Dynamic stiffness analysis of laminated beams using first order shear deformation theory. *Compos Struct* 31:265–271

Abramovich H, Eisenberger M, Shulepov O (1996) Vibrations and buckling of cross-ply nonsymmetric laminated composite beams. *AIAA J* 34:1064–1069

M. Eisenberger, An exact high order beam element, *Comput Struct*, 81 (2003), pp. 147–152

Eisenberger M, Alexandrov A. Buckling loads of variable thickness thin isotropic plates. *Thin-Walled Structures* 2003;41(9):871–889.

Shufrin I, Eisenberger M. Stability of variable thickness shear deformable plates first order and high order analyses. *Thin-Walled Structures* 2005;43(2):189–207

He, X. Q., Eisenberger, M., and Liew, K. M., The Effect of van der Waals Interaction Modeling on the Vibration Characteristics of Multiwalled Carbon Nanotubes. *Journal of Applied Physics*, 100(12): 124317-12., 2006

Shufrin I, Eisenberger M. Shear buckling of thin plates with constant in-plane stresses. *Int J Struct Stab Dyn* 2007;7(2):179–92

Efraim E, Eisenberger M. Exact vibration analysis of variable thickness thick annular isotropic and FGM plates. *J Sound Vib* 2007;299:720–738

Shufrin, I., Rabinovitch, O., and Eisenberger, M., "A Semi-Analytical Approach for the Non-Linear Large Deflection Analysis of Laminated Rectangular Plates Under General Out-of-Plane Loading," *International Journal of Non-Linear Mechanics*, Vol. 43, No. 4, 2008, pp. 328–340

I. Shufrin, O. Rabinovitch and M. Eisenberger, "Buckling of symmetrically laminated rectangular plates with general boundary conditions – A semi analytical approach", *Composite Structures*, Vol.82, No. 4, February 2008, pp. 521-531

Wang, C. M., Kitipornchai, S., Lim, C. W. and Eisenberger, M. 2008. Beam Bending Solutions Based on Nonlocal Timoshenko Beam Theory. *J. Eng. Mech.*, 134: 475–481

I. Shufrin, O. Rabinovitch, and M. Eisenberger, "Buckling of laminated plates with general boundary conditions under combined compression, tension, and shear-A semi-analytical solution", *Thin-Walled Structures*, vol. 46, no. 7-9, pp. 925-938, 2008.

Shufrin I, Rabinovitch O, Eisenberger M (2009) Elastic nonlinear stability analysis of thin rectangular plates through a semi-analytical approach. *Int J Solids Struct* 46:2075–2092

Elia Efraim and Moshe Eisenberger, "Dynamic stiffness vibration analysis of thick spherical shell segments with variable thickness", *Journal of Mechanics of Materials and Structures*, Vol. 5, No. 5, pp 821-835, 2010

Shufrin, O. Rabinovitch, M. Eisenberger, A semi-analytical approach for the geometrically nonlinear analysis of trapezoidal plates, *Int J Mech Sci*, 52 (12) (2010), pp. 1588–1596

Isaac Elishakoff, Moshe Eisenberger and Axel Delmas, "Buckling and vibration of functionally graded material columns sharing Duncan's mode shape, and new cases", *Structures*, Vol. 5, pp 170-174, February 2016

Michele Baccocchi, Moshe Eisenberger, Nicholas Fantuzzi, Francesco Tornabene and Erasmo Viola, "Vibration analysis of variable thickness plates and shells by the Generalized Differential Quadrature method", *Composite Structures*, Vol. 156, pp 218-237, November 2016