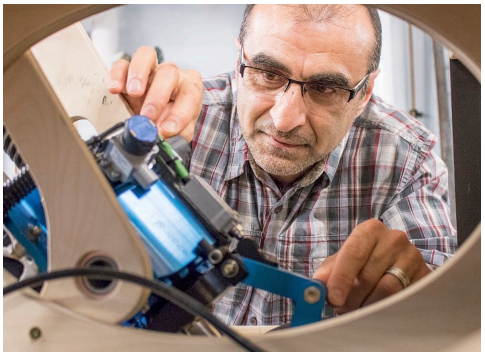

**Professor Seyed M. Hashemi**

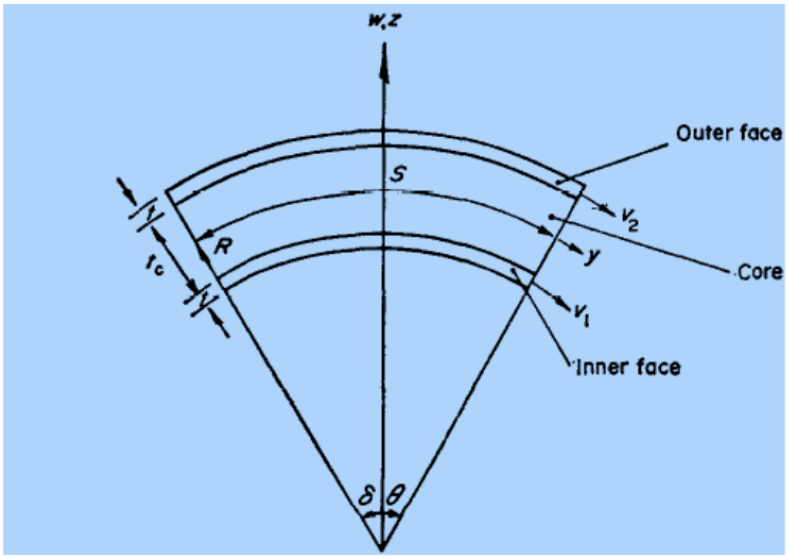


Fig. 1. Coordinate system and notation for curved symmetric three-layered sandwich beams

From: Seyed M. Hashemi and Ernest J. Adique, "Free vibration analysis of curved sandwich beams: A dynamic finite element", Chapter 3 in Advances in Vibration Analysis Research, pp 37-56, April 2011

See:
https://www.ryerson.ca/aerospace/people/faculty/seyed-hashemi/
https://www.researchgate.net/profile/Seyed_Hashemi7
https://ryerson.academia.edu/SeyedMHashemi

Department of Aerospace Engineering
Ryerson University, Toronto, Ontario, Canada

**Biography:**
Whether he's working behind the scenes in his lab or contributing to the most exciting transportation project of the decade, Seyed Hashemi is always making something new. A professor and a researcher of vibrations in composite structures, Hashemi is also the main faculty advisor for Ryerson's International Hyperloop Team, which won the Subsystem Innovation Award at the 2016 SpaceX competition. "It was incredible for the students," he says. "It gave them the chance to build something that, one day, could have a huge impact on society." For all of Hashemi's students, Hyperloopers included, the road to success begins in his classroom. "I give them direct examples from my own career and what's happening now in industry, so they know how the equations on the board apply in the real world." Once they have the foundations, Hashemi encourages them to make the most of the opportunities at Ryerson, including RIADI, teams and clubs, and co-operative internships. These opportunities add up to the kind of experience that Hashemi knows will help students build careers as fulfilling as his own. "The French word for engineering—génie—also means to do out-of-the-ordinary work and design new things," he says. "That's what I get to do every day."

**Education:**
1990 BSc Sharif University of Technology
1992 DEA University of Lille
1998 PhD Laval University

**Research Interests:**
Finite element method; Numerical/Analytical/Semi-analytical methods; Structural dynamics; Vibrations; Stability; Additive manufacturing/3D printing; Mesh reduction; Morphing structures

**Selected Publications:**
S. M. Hashemi, Free-vibrational analysis of rotating beam-like structures: A dynamic finite element approach [Ph.D. thesis], Laval University, Quebec, Canada, 1998.
Hashemi, S. M.; Richard, M. J. & Dhatt, G. (1999). A new dynamic finite elements (DFE) formulation for lateral free vibrations of Euler-Bernoulli spinning beams using trigonometric shape functions. Journal of Sound and Vibration, Vol. 220, No. 4, (March 1999) 601-624, ISSN: 0022-460X.
S. M. Hashemi and M. J. Richard, "A Dynamic Finite Element (DFE) method for free vibrations of bending-torsion coupled beams," Aerospace Science and Technology, vol. 4, no. 1, pp. 41–55, 2000.
S. M. Hashemi and M. J. Richard, "Free vibrational analysis of axially loaded bending-torsion coupled beams: a dynamic finite element," Computers & Structures, vol. 77, no. 6, pp. 711–724, 2000.
Hashemi, S. M. (2002). The use of frequency dependent trigonometric shape functions in vibration analysis of beam structures – bridging the gap between FEM and exact DSM formulations. Asian Journal of Civil Engineering, Vol. 3, No. 3&4, (2002) 33-56, ISSN: 15630854.
Hashemi, S. M. & Borneman, S. R. (2004). Vibration analysis of composite wings undergoing material and geometric couplings: a dynamic finite element formulation. CD Proceedings of the 2004 ASME International Mechanical Engineering Congress (IMECE 2004,) Aerospace Division, pp 1-7, November 2004, Anaheim, CA, USA.
Hashemi, S. M. and Borneman, S. R. (2005). A dynamic finite element formulation for the vibration analysis of laminated tapered composite beams. CD Proceedings of the Sixth Canadian-International Composites Conference (CanCom), pp. 1-13, August 2005, Vancouver, BC, Canada.
S.M. Hashemi and A. Roach, "A dynamic finite element for vibration analysis of cables and wire ropes", Asian Journal of Civil Engineering (Building and Housing) Vol. 7, No. 5, pp 487-500, 2006
Hashemi, S. M.; Borneman, S. R. & Alighanbari, H. (2008). Vibration analysis of cracked composite beams: a dynamic finite element. International Review of Aerospace Engineering (I.RE.AS.E.), Vol. 1, No. 1, (February 2008) 110-121, ISSN: 1973-7459.
Hashemi, S. M. & Roach, A. (2008a). A dynamic finite element for coupled extensional- torsional vibrations of uniform composite thin-walled beams. International Review of Aerospace Engineering (I.RE.AS.E.) , Vol. 1, No. 2, (April 2008) 234-245, ISSN: 1973- 7459.
Hashemi, S.M. & Roach, A. (2008b). Free vibration of helical springs using a dynamic finite element mesh reduction technique. International Review of Mechanical Engineering, Vol. 2, No. 3, (May 2008) 435-449 , ISSN: 1970 - 8734.
Hashemi, S. M. & Adique, E.J. (2009). Free Vibration analysis of Sandwich Beams: A Dynamic Finite Element, International Journal of Vehicle Structures & Systems (IJVSS), Vol. 1, No 4, (November 2009) 59-65, ISSN: 0975-3060 (Print), 0975-3540
S. M. Hashemi and A. Roach, "A Dynamic Finite Element for the Free Vibration Analysis of Extension-Torsion Coupled Composite Beams," vol. 1, pp. 221–223, 2010.
S. M. Hashemi and E. J. Adique, "A quasi-exact dynamic finite element for free vibration analysis of sandwich beams," Applied Composite Materials, vol. 17, no. 2, pp. 259–269, 2010.
N. Erdelyi and S. M. Hashemi, "Free vibration analysis of delaminated layered beams: a dynamic finite element (DFE) technique," in Proceedings of the 8th Joint Canada-Japan Workshop on Composite Materials, p. 10, Montreal, Canada, July 2010.

N. Erdelyi and S. M. Hashemi, “An exact dynamic stiffness matrix (DSM) formulation for free vibration analysis of delaminated beams,” in Proceedings of the 8th Joint Canada-Japan Workshop on Composite Materials, p. 10, Montreal, Canada, July 2010.
S. M. Hashemi and S. Borneman, “Doubly-coupled vibrations of nonuniform composite wings: a dynamic finite element,” in Mathematical Problems in Engineering, Aerospace and Sciences, S. Sivasundaram, Ed., vol. 5, pp. 141–152, Cambridge Scientific Publishers, 2011.
Seyed M. Hashemi and Ernest J. Adique, “Free vibration analysis of curved sandwich beams: A dynamic finite element”, Chapter 3 in Advances in Vibration Analysis Research, pp 37-56, April 2011
S. M. Hashemi and A. Roach, “Dynamic finite element analysis of extensional-torsional coupled vibration in nonuniform composite beams,” Applied Composite Materials, vol. 18, no. 6, pp. 521–538, 2011.
N. H. Erdelyi and S. M. Hashemi, “A dynamic stiffness element for free vibration analysis of delaminated layered beams,” Modelling and Simulation in Engineering, vol. 2012, Article ID 492415, 8 pages, 2012.
M. T. Kashani, S. Jayasinghe, and S. M. Hashemi, “On the flexural-torsional vibration and stability of beams subjected to axial load and end moment,” Shock and Vibration, vol. 2014, Article ID 153532, 11 pages, 2014
M. T. Kashani, S. Jayasinghe, and S. M. Hashami, “Dynamic finite element analysis of bending–torsion coupled beams subjected to combined axial load and end moment,” Shock and Vibration, vol. 2015, Article ID 471270, 12 pages, 2015.
S. Jayasinghe and S. M. Hashemi, “Frequency dependant trigonometric shape functions for thin rectangular plate elements,” in Proceedings of the 23rd International Congress on Sound and Vibration (ICSV '16), 2016.
N. H. Erdelyi and S. M. Hashemi, “On the finite element free vibration analysis of delaminated layered beams: a new assembly technique,” Shock and Vibration, vol. 2016, Article ID 3707658, 14 pages, 2016.
Mohammad M. Elahi and Seyed M. Hashemi, “A framework for extension of dynamic finite element formulation to flexural vibration analysis of thin plates”, Shock and Vibration, Article ID 5905417, Vol 2017
Mir Tahmaseb Kashani and Seyed M. Hashemi, “A finite element formulation for bending-torsion coupled vibration analysis of delaminated beams under combined axial load and end moment”, Shock and Vibration, Article ID 1348970, Vol. 2018
Supun Jayasinghe and Seyed M. Hashemi, “A dynamic coefficient matrix method for the free vibration of thin rectangular isotropic plates”, Shock and Vibration, Article ID 1071830, Vol. 2018
Supun Jayasinghe and Seyed M. Hashemi, “New frequency-dependent trigonometric interpolation functions for the dynamic finite element analysis of thin rectangular plates”, Shock and Vibration, Article ID 6980536, Vol. 2018