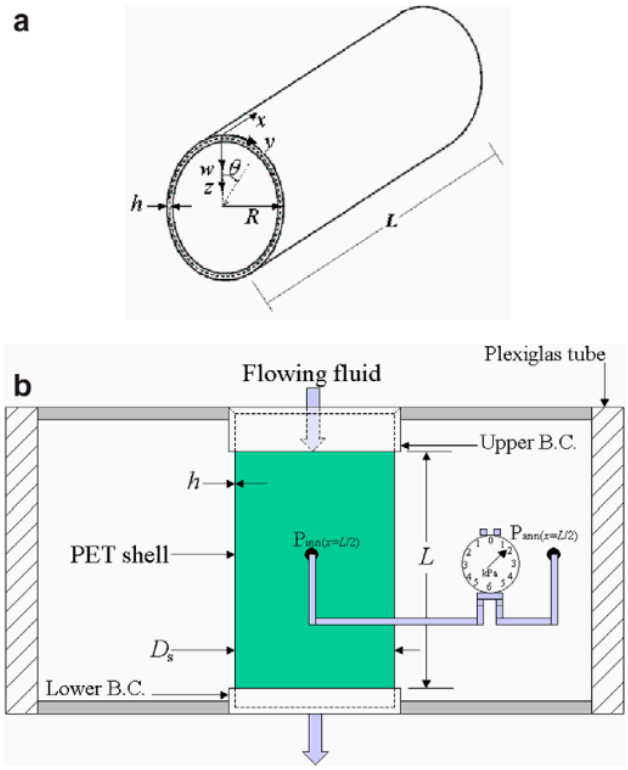

Fig. 1. A clamped polyethylene terepthalate shell in internal water flow used in the parametric studies: (a) shell geometry and origin of coordinate system; (b) configuration of the shell in the water tunnel test-section where D_s is the external diameter, h the thickness and L the length of the PET shell.

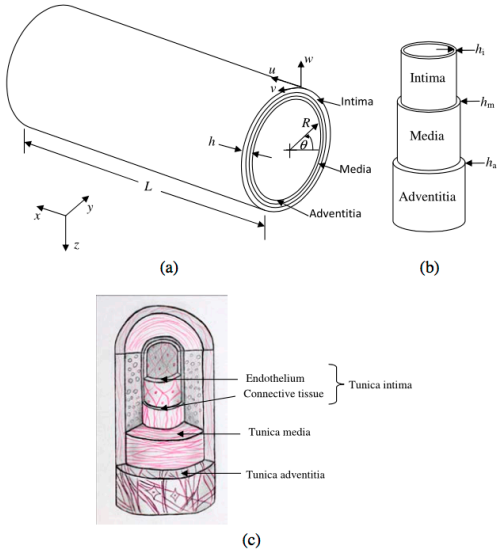

Figure 1. Aorta segment configuration. (a) A circular cylindrical shell segment used in the simulation; (b) the three layers used in the modeling of the aorta; (c) dissection of the aortic wall (courtesy of Ms. Olga German).

Left-side figure is from: K.N. Karagiozis, M.P. Païdoussis and M. Amabili, "Effect of geometry on the stability of cylindricaql clamped shells subjected to internal fluid flow", Computers & Structures, Vol. 85, pp 645-659, 2007

Right-side figure is from: M. Amabili, K. Karazis, R. Mongrain, M.P. Païdoussis and R. Cartier, "A three-layer model for buckling of a human aortic segment under specific flow-pressure conditions", International Journal for Numerical Methods in Biomedical Engineering, Vol. 28, No. 5, pp 495-512, 2012

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See:

https://scholar.google.com/citations?user=8SZn6qkAAAAJ&hl=en
https://www.researchgate.net/profile/Kostas_Karazis
http://www.framatome.com/EN/us_platform-4023/integrated-metrology-solutions-from-framatome.html

Framatome Inc.

Selected Publications:

Karagiozis KN, Païdoussis MP, Grinevich E, Misra AK, Amabili M. Stability and non-linear dynamics of clamped circular cylindrical shells in contact with flowing fluid. In: Benaroya, Wei, editors. Proceedings IUTAM symposium on integrated modeling of fully coupled fluid structure interactions, NJ, 2003.

Karagiozis KN, Païdoussis MP, Grinevich E, Misra AK, Amabili M. Non-linear dynamics of clamped cylindrical shells subjected to flow. In: deLangre, Axisa, editors. Proceedings eighth international conference on

flow-induced vibration, vol. I. Paris: Ecole Polytechnique; 2004.
Karagiozis KN, Païdoussis MP, Misra AK. Stability of the nonlinear dynamics of clamped shells in contact with fluid. In: Proceedings 20th Canadian congress of applied mechanics. Montreal: McGill University; 2005.
Karagiozis KN, Païdoussis MP, Misra AK, Grinevich E. An experimental study of the nonlinear dynamics of cylindrical shells with clamped ends subjected to axial flow. J Fluids Struct 2005;20: 801–816.
Karagiozis KN. Experiments and theory on the nonlinear dynamics and stability of clamped shells subjected to axial fluid flow or harmonic excitation. PhD thesis, Mechanical Engineering Department, McGill University, 2006.
K.N. Karagiozis, M. Amabili, M.P. Païdoussisa and A.K. Misra, "Nonlinear vibrations of fluid-filled clamped circular cylindrical shells", Journal of Fluids and Structures, Vol.21, Nos. 5-7, December 2005, pp. 579-595
K.N. Karagiozis, M.P. Païdoussis and A.K. Misra, "Transmural pressure effects on the stability of clamped cylindrical shells subjected to internal fluid flow: Theory and experiments", International Journal of Non-Linear Mechanics, Vol. 42, No. 1, pp 13-23, 2007
K.N. Karagiozis, M.P. Païdoussis and M. Amabili, "Effect of geometry on the stability of cylindrical clamped shells subjected to internal fluid flow", Computers & Structures, Vol. 85, pp 645-659, 2007
K. Karagiozis, M. Païdoussis, M. Amabili, A. Misra, Nonlinear stability of cylindrical shells subjected to axial flow: theory and experiments, J. Sound Vib., 309 (3-5) (2008), pp. 637-676
M. Amabili, K. Karagiozis, M. Païdoussis, Effect of geometric imperfections on non-linear stability of circular cylindrical shells conveying fluid, Int. J. Non Lin. Mech., 44 (3) (2009), pp. 276-289
Marco Amabili, Kostas Karagiozis and Michael P Païdoussis, "Chaotic vibrations of circular shells conveying flowing fluid", ASME 2009 International Mechanical Engineering Congress and Exposition, pp 769-776, January 2009
Kostas Karagiozis, Fehmi Cirak, Ramji Kamakoti and Carlos Pantano, "Computational fluid-structure interaction methods for simulation of inflatable aerodynamic decelerators", 20th AIAA Aerodynamic Decelerator Systems Technology Conference, 4-7 May 2009, Seattle, Washington
K. Karagiozis, M. Amabili and M.P. Païdoussis, "Nonlinear dynamics of harmonically excited circular cylindrical shells containing fluid flow", Journal of Sound and Vibration, Vol. 329, No. 18, pp 3813-3834, 2010
M. Amabili, K. Karazis and K. Khorshidi, "Nonlinear vibrations of rectangular laminated composite plates with different boundary conditions", International Journal of Structural Stability and Dynamics, Vol. 11, No. 4, pp 673-695, 2011
Alijani F., Amabili M., Karagiozis K., Bakhtiari-Nejad F.: Nonlinear vibrations of functionally graded doubly curved shallow shells. J. Sound Vib. 330(7), 1432–1454 (2011)
M. Amabili, K. Karazis, R. Mongrain, M.P. Païdoussis and R. Cartier, "A three-layer model for buckling of a human aortic segment under specific flow-pressure conditions", International Journal for Numerical Methods in Biomedical Engineering, Vol. 28, No. 5, pp 495-512, 2012
Kostas Karazis and Michael P. Païdoussis, "Dynamic divergence mechanism in shells with internal axial flow", ASME 2015 International Mechanical Engineering Congress and Exposition, November 2015