



Professor Trung Nguyen-Thoi

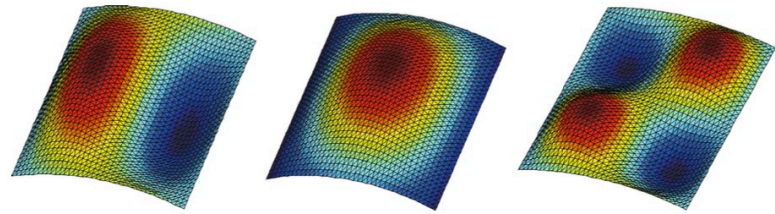


Fig. 11 The first three free vibration mode shapes of the intact cylindrical shell

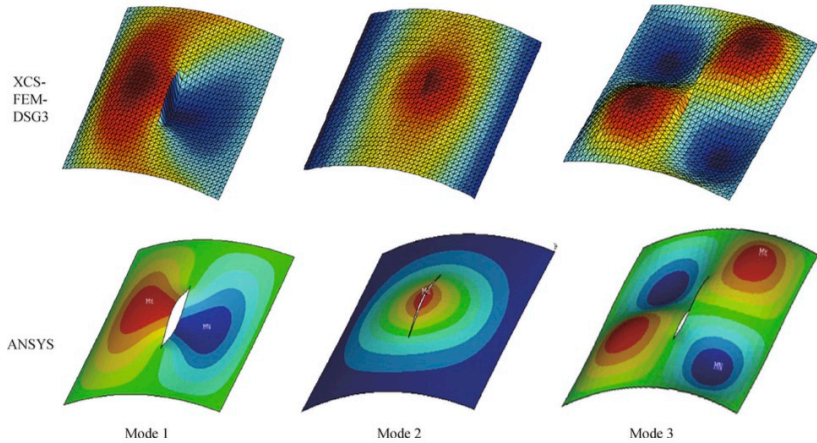


Fig. 12 The first three mode shapes with middle crack along y -axis at crack length $l = 0.3$

From: M.H. Nguyen-Thoi, L. Le-Anh, V. Ho-Huu, H. Dang-Trung and T. Nguyen-Thoi, "An extended cell-based smoothed discrete shear gap method (XCS-FEM-DSG3) for free vibration analysis of cracked Reissner-Mindlin shells", in *Frontiers of Structural and Civil Engineering*, November 2015, DOI: 10.1007/s11709-015-0302-1

See:

https://www.researchgate.net/profile/T_Nguyen-Thoi

<https://scholar.google.com/citations?user=hE7o5mMAAAAJ&hl=da>

<http://www.tdtu.edu.vn/en/tdtu-prize/dr-nguyen-thoi-trung>

Director of Institute for Computational Science, Computational Mathematics and Engineering, Ton Duc Thang University (TDTU), Vietnam

Biography (from <http://www.tdtu.edu.vn/en/tdtu-prize/dr-nguyen-thoi-trung>):

Dr. Nguyen Thoi Trung is a Research Full Professor of Ton Duc Thang University, and Director of the University's Institute for Computational Science. He was born in 1976 in Vietnam. He graduated from Bach Khoa University (VNU-HCMC) in 1999 with an engineer degree in civil engineering. In 2001, he graduated from University of Science (VNU-HCMC) with a bachelor degree in mathematics and computer science, and went on to obtain a master degree in applied mathematics from the same university. He undertook his doctoral training in the mechanical engineering from National University of Singapore and graduated in 2010. Subsequently, in 2015 he graduated from University of Social Sciences and Humanities (VNU-HCMC) with a bachelor degree of philosophy. Dr. Trung is recognized as a leading expert in computational mechanics internationally. He has made important contributions and innovations in the field. His research interests include Numerical methods, Computational mechanics, Structural optimization, Reliability analysis, Artificial Intelligence and Structural health monitoring. His contributions included structural analysis, optimization, and

intelligent computation have influenced the discipline. He has published over 100 papers in ISI-indexed journals. His work has been influential, with his Scopus H-index being 35 and 4176 citations. In 2014, he was promoted to Associate Professor in Mechanics by The State Council for Professor Title of Vietnam. In 2017, he was promoted to full professor (research track) of Ton Duc Thang University. Also in 2017, Dr Trung got the award “Exceptional excellence in scientific research” from Ton Duc Thang University.

Working History:

- From 2001 to 8/2014: Lecturer and researcher of Department of Mechanics, Faculty of Mathematics & Computer Science, University of Science – Vietnam National University – HCMC, Vietnam.
- From 03/2010 to 11/2013: Deputy head of Division of Computational Mechanics, Ton Duc Thang University (TDTU).
- From 11/2013 to 02/2014: Director assistant (part time) of Department for Management of Science and Technology Development, TDTU.
- From 11/2013 to now: Head of Division of Computational Mathematics and Engineering, TDTU.
- From 02/2016 to 8/2017: Vice - President of Ton Duc Thang University.
- Since 02/2014 to now: Director of Institute for Computational Science (INCOS), TDTU.

Research Interests:

- Computational Mechanics (Numerical Methods (Smoothed Finite Element Methods (SFEM), Isogeometric elements (IGA), Fracture Mechanics (X-FEM, eXtended SFEM), Non-linear analysis (materials, geometry), Interaction in multiphysics environment (solid, fluid, soil, acoustic, temperature, electric), etc)
- Analysis of structures (2D, 3D, plates, shells, stiffened plates, folded plates) using intelligent materials (FGM, Composite, Piezo-electricity) ...)
- Structural Optimization & Applied Optimization (Topology optimization, structural optimization, dynamic optimization, intelligent optimization, multi-objective optimization, reliability-based optimization, limit analysis)
- Reliability Analysis of Structures (FORM, SORM, Monte Carlo, Surface Response, Intelligent reliability analysis (Neural-Network)...))
- Intelligent Computation (Neural Network, Fuzzy, Artificial intelligence, Adaptive Neuro-fuzzy inference system (ANFIS) ...)
- Numerical methods for Structural Health Monitoring (SHM)
- Parallel Computing (Clusters and GPU)

Selected Publications:

Books:

G.R. Liu, Nguyen Thoi Trung, Smoothed Finite Element Methods. CRC Press, New York, 2010

Journal Articles:

Nguyen-Xuan, H. and Nguyen-Thoi, T. (2008c). “A stabilized smoothed finite element method for free vibration analysis of Mindlin-Reissner plates.” Communications in Numerical Methods in Engineering, DOI: 10.1002/cnm.1137 (in press).

Nguyen-Thoi, T., Liu, G., Lam, K. & Zhang, G. A face-based smoothed finite element method (FS-FEM) for 3D linear and geometrically non-linear solid mechanics problems using 4-node tetrahedral elements. Int. J. Numer. Meth. Eng. 78, 324–353 (2009).

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Liu G.R., Nguyen-Thoi T., Lam Y.K.: An edge-based smoothed finite element method (ES-FEM) for static, free and forced vibration analyses of solids. *J. Sound Vib.* 320, 1100–1130 (2009)

Nguyen-Thoi, T., Liu, G.R., Vu-Do, H.C., et al.: A face-based smoothed finite element method (FS-FEM) for visco-elastoplastic analyses of 3D solids using tetrahedral mesh. *Comput. Methods Appl. Mech. Eng.* 198, 3479–3498 (2009)

Nguyen-Xuan H., Liu G.R., Thai-Hoang C., Nguyen-Thoi T.: An edge-based smoothed finite element method (ES-FEM) with stabilized discrete shear gap technique for analysis of Reissner–Mindlin plates. *Comput. Methods Appl. Mech. Eng.* 199, 471–489 (2010)

Nguyen-Thoi, T., Liu, G.R., Nguyen-Xuan, H., et al.: Adaptive analysis using the node-based smoothed finite element method (NS-FEM). *Int. J. Numer. Methods Biomed. Eng.* 27, 198–218 (2011)

Liu, G.R., Nguyen-Xuan, H., Nguyen-Thoi, T.: A variationally consistent α -FEM (VC α FEM) for solution bounds and nearly exact solution to solid mechanics problems using quadrilateral elements. *Int. J. Numer. Methods Eng.* 85, 461–497 (2011)

Nguyen-Xuan H., Tran L.V., Nguyen-Thoi T., Vu-Do H.C.: Analysis of functionally graded plates using an edge-based smoothed finite element method. *Compos. Struct.* 93, 3019–3039 (2011)

H. Nguyen-Xuan, Loc V. Tran, Chien H. Thai and T. Nguyen-Thoi, “Analysis of functionally graded plates by an efficient finite element method with node-based strain smoothing”, *Thin-Walled Structures*, Vol. 54, pp 1-18, May 2012

Thai CH, Nguyen-Xuan H, Nguyen-Thanh, Le TH, Nguyen-Thoi T, Rabczuk T. Static, free vibration, and buckling analysis of laminated composite Reissner-Mindlin plates using NURBS-based isogeometric approach. *Int J Numer Methods Eng*, August 2012; 91(6): 571-603.

Nguyen-Thoi, T., Phung-Van, P., Nguyen-Xuan, H., et al.: A cell-based smoothed discrete shear gap method using triangular elements for static and free vibration analyses of Reissner–Mindlin plates. *Int. J. Numer. Methods Eng.* 91, 705–741 (2012)

Nguyen-Thoi, T., Phung-Van, P., Luong-Van, H., et al.: A cell-based smoothed three-node Mindlin plate element (CS-MIN3) for static and free vibration analyses of plates. *Comput. Mech.* 51, 65–81 (2013)

Nguyen Thoi Trung, Bui Xuan Thang, Ho Huu Vinh, Lam Phat Thuan and Ngo Thanh Phong, “An effective algorithm for reliability-based optimization of stiffened Mindlin plate”, *Vietnam Journal of Mechanics*, VAST, Vol. 35, No. 4, pp 335-346, 2013

Nguyen-Xuan H, Thai CH, Nguyen-Thoi T. Isogeometric finite element analysis of composite sandwich plates using a higher order shear deformation theory. *Compos Part B* 2013; 55:558–574.

T. Nguyen-Thoi, P. Phung-Van, C. Thai-Hoang and H. Nguyen-Xuan, “A cell-based smoothed discrete shear gap method (CS-DSG3) using triangular elements for static and free vibration analyses of shell structures”, *International Journal of Mechanical Sciences*, Vol. 74, pp 32-45, September 2013

T. Nguyen-Thoi, T. Bui-Xuan, P. Phung-Van, H. Nguyen-Xuan and P. Ngo-Thanh, “Static, free vibration and buckling analyses of stiffened plates by CS-FEM-DSG3 using triangular elements”, *Computers & Structures*, Vol. 125, pp 100-113, September 2013

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Phung-Van, P., Nguyen-Thoi, T., Luong-Van, H., Lieu-Xuan, Q. (2014). Geometrically nonlinear analysis of functionally graded plates using a cell-based smoothed three-node plate element (CS-MIN3) based on the C0-HSDT. *Computer Methods in Applied Mechanics and Engineering* 270:15-36.

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