

Figure 1. Buckling of a delaminated laminate: (a) local mode, (b) global mode and (c) mixed mode.

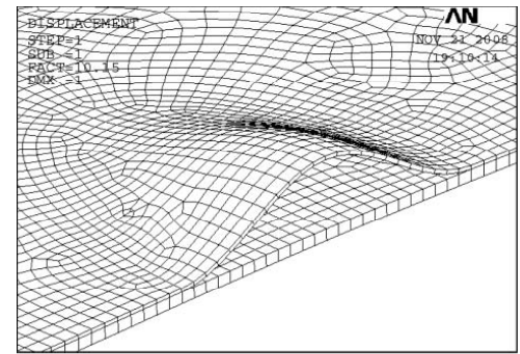


Figure 3. View of a buckled sub-laminate (half laminate shown).

## Professor Nicholas G. Tsouvalis

Figs.1 & 3 are from: N.G. Tsouvalis, G.S. Garganidis, "Buckling strength parametric study of composite laminated plates with delaminations", *Ships and Offshore Structures*, 6, Nos. 1-2, (2011), pp. 93-104

See:

[https://www.researchgate.net/profile/Nicholas\\_Tsouvalis](https://www.researchgate.net/profile/Nicholas_Tsouvalis)

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### Summary:

Professor Tsouvalis' scientific research areas are (among others): mechanical behaviour of composite materials, especially in marine environment, structural design and numerical modelling of marine structures using advanced materials, structural design of composite underwater vehicles, development of cost-effective advanced fabrication methods for building composite materials vessels, steel-to-composite joints, effect of material and geometry imperfections on the strength of composite materials.

### Selected Publications:

- V.J. Papazoglou, N.G. Tsouvalis and G.D. Kyriakopoulos, "Buckling of unsymmetric laminates under linearly varying, biaxial in-plane loads, combined with shear", *Composite Structures*, Vol. 20, pp 155-163, 1992
- Papazoglou VJ, Tsouvalis NG (1995) Large deflection dynamic response of composite laminated plates under in-plane loads. *Compos Struct* 33:237-252
- Papazoglou, V.J. and Tsouvalis, N.G., "Finite element buckling analysis of carbon epoxy cylinders", *Proceedings of the 1st Hellenic Conference on Composite Materials and Structures*, Xanthi, Greece (1997), pp. 508-526.
- Papazoglou VJ, Tsouvalis NG, Zaphiratou AA. Parametric study of small scale cylinders under hydrostatic load: flat rigid end closures. MAST III project MAS3-CT97-0091, report n° STL-073-F-98. National Technical University of Athens, 1998.
- Tsouvalis, N.G., Zaphiratou, A.A. and Papazoglou, V.J., "Parametric study of composite cylinders under hydrostatic load: Effect of end closures and lay-up", *Proceedings of the 4th International Colloquium on Computation of Shell and Spatial Structures*, IASS- IACM 2000, Papadrakakis M., Samartin A. and Onate E., Editors, Chania, Greece (2000).
- Tsouvalis, N.G., Zafeiratou, A.A., Papazoglou, V.J., Gabrielides, N.C., Kaklis, P.D.: Numerical modeling of composite laminated cylindrical shells in compression using a novel imperfections modeling method. *Compos., Part B Eng.* 32, 387-399 (2001)
- Patreli, A.S., Tsouvalis, N.G.: A parametric study of the effect of geometric imperfections on the buckling behavior of composite laminated cylinders. In: *Proceedings of the HELLAS-COM 2001, Second National Conference on Composite Materials*, Patras, Greece (2001)

A.S. Petreli and N.G. Tsouvalis, "A parametric study of the effect of geometric imperfections on the buckling behaviour of composite laminated cylinders", *Advanced Composites Letters*, Vol. 11, No. 3, 2002

Tsouvalis, N.G., Zafeiratou, A.A., Papazoglou, V.J., 2003. The effect of geometric imperfections on the buckling behavior of composite laminated cylinders under external hydrostatic pressure. *Composites Part B: Engineering* 34, 217–226.

Nicholas G. Tsouvalis and Vassilios J. Papazoglou, "Design buckling curves for clamped orthotropic laminated plates", *Advanced Composites Letters*, Vol. 13, No. 5, 2004

N.G. Tsouvalis and M.J. Kollarini, "Experimental investigation of strain concentrations caused by inserts in sandwich beams", *Strain*, 2008, doi: 10.1111/j.1475-1305.2007.00369.x

N.G. Tsouvalis, G.S. Garganidis, "Buckling strength parametric study of composite laminated plates with delaminations", *Ships and Offshore Structures*, 6, Nos. 1-2, (2011), pp. 93-104

K.N. Anyfantis, N.G. Tsouvalis, Post buckling progressive failure analysis of composite laminated stiffened panels, *Appl Compos Mater*, 19 (3–4) (2012), pp. 219-236

E.A. Kotsidis, I.G. Kouloukouras, N.G. Tsouvalis, Finite element parametric study of a composite-to-steel-joint, TA (Ed.), *Taylor & Francis Group. Maritime Technology and Engineering*, Guedes Soares, C & Santos, London (2015), pp. 627-635

Ioannis Skarakis, Giannoula Chatzopoulou, Spyros A. Karamanos, Nicholas G. Tsouvalis and Aglaia E. Pournara, "CFRP reinforcement and repair of steel pipe elbows subjected to severe cyclic loading", *ASME Journal of Pressure Vessel Technology*, Vol. 139, No. 5, 051403, October 2017