



**Dr. Caitríona de Paor**



From: De Paor, C., 2012, "The Effect of Random Geometric Imperfections on The Buckling of Thin Cylindrical Shells Due to External Pressure," Ph.D. thesis, National University of Ireland, Cork, Ireland.

See:

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Senior Engineer, Wood Group, Ireland

### **Biography/Autobiography:**

Dr. Caitríona de Paor is a Chartered Engineer (Engineers Ireland) with a first class BE Civil (Hons) degree and PhD in Engineering (involving a secondment to MIT), both from University College Cork (UCC). Over five years' experience working in the oil and gas industry where strong problem solving abilities, excellent communication and teamwork skills, along with attention to detail have contributed to ensuring consistent delivery of successful projects to clients.

I began working for Wood Group (formerly Wood Group Kenny/MCS Kenny) as a Graduate Engineer in 2012, progressed to Project Engineer and am now Senior Engineer. I have been involved in a wide range of projects as engineer and project manager including drilling riser analysis, concept evaluation, flexible riser design as well as integrity management. Responsibilities include data collation and review, quality assurance of analysis inputs and methodology, report writing, client updates and review meetings, and overseeing budgetary, resource and scheduling requirements.

Offshore experience on the Maersk Venturer drillship providing software support in 2016.

2007-2012 Ph.D University College Cork, Structural Engineering: Experimental and numerical analyses were performed to investigate the effect of initial geometric imperfections on the buckling of thin cylinders due to external pressure. Surface geometries of small scale cylinders which were representative of larger scale vessels were measured and analysed to determine the initial geometric imperfections. Laboratory experiments were then conducted on them to investigate their collapse pressures. Numerical models containing the exact surface geometries of the cylinders were then created in a nonlinear Finite Element analysis. Multipurpose Finite Element Analysis package Strand7 was used for the numerical analysis. Buckling collapse pressures and buckling mode shapes were predicted very accurately by the FE software. Random imperfections were also generated based on the measured surface geometry and modelled in FE also. Thus, the buckling pressure could be predicted based on a specific level of initial imperfection.

**Selected Publications:**

Caitríona de Paor, Department of Civil and Environmental Engineering, University College Cork (UCC), “Buckling of thin-walled cylinders: experimental and numerical investigation”, The Boolean, 2010

Caitríona de Paor, Denis Kelliher, Kevin Cronin and William M.D. Wright, “The Computation of Accurate Buckling Pressures of Imperfect Thin-Walled Cylinders”, Paper number PVP2010-25806, Proceedings of the ASME 2010 Pressure Vessels & Piping Division / K-PVP Conference, PVP2010 July 18-22, 2010, Bellevue, Washington, USA

De Paor, C., 2012, “The Effect of Random Geometric Imperfections on The Buckling of Thin Cylindrical Shells Due to External Pressure,” Ph.D. thesis, National University of Ireland, Cork, Ireland.

De Paor, C., Cronin, K., Gleeson, J. P., and Kelliher, D., 2012, “Statistical Characterisation and Modeling of Random Geometric Imperfections in Cylindrical Shells,” *Thin-Walled Struct.*, 58, pp. 9–17.

C. de Paor, D. Kelliher, K. Cronin, W. M. D. Wright, and S. G. McSweeney, “Prediction of vacuum-induced buckling pressures of thin-walled cylinders,” *Thin-Walled Structures*, vol. 55, pp. 1–10, Jun. 2012