Dr. Olawale Ifayefunmi

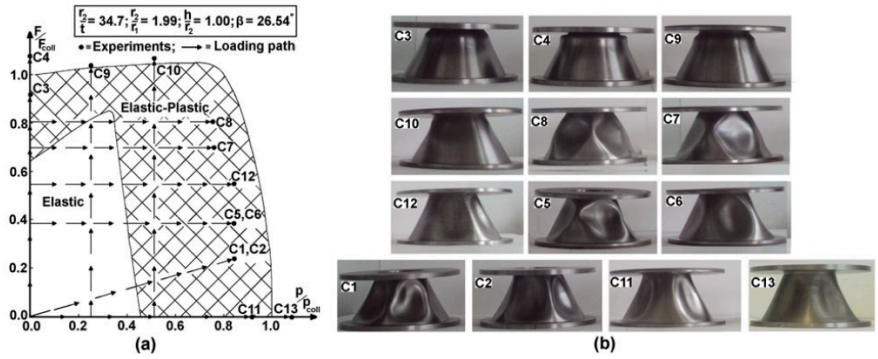

Figure 7. Illustration of loading paths for all tested cones (a) and the corresponding collapse shape after test (b). Note: In (a), the pressure axis is normalised by average experimental collapse pressure. The force axis is normalised by average experimental collapse force. (This figure is available in colour online.)

From: Interactive buckling tests on steel cones subjected to axial compression and external pressure–a comparison of experimental data and design codes, O Ifayefunmi, Ships and Offshore Structures 9 (6), 669-679, 2013

See:
https://scholar.google.com/citations?user=R-UMPgkAAAAJ&hl=en
http://www.researchgate.net/profile/Olawale_Ifayefunmi
https://my.linkedin.com/pub/olawale-ifayefunmi/37/951/142

Technical University of Malaysia Melaka

Autobiography:
Olawale Ifayefunmi received his MSc (Eng) in Advanced Manufacturing Systems and Technology in 2006 and PhD in Mechanical Engineering in 2011 from The University of Liverpool, United Kingdom. He worked as Research Associate for six months in 2012 and as Honorary Research Fellow for two months in 2013 at The University of Liverpool. He was appointed Senior Lecturer at Faculty of Engineering Technology, Universiti Teknikal Malaysia Melaka in 2013. Whilst in the UK, he has developed unique expertise in experimental and computational mechanics. Initially he has worked on combined stability of conical shells (Structural/Stress analysis) – the theme directly relevant to offshore/underwater, petrochemical and energy industries. He then briefly moved to bioengineering field, and more recently he has expanded his expertise to burst failures of pressure vessels components. He has published more than 14 papers in reviewed scientific journal and proceedings. His research interest include buckling of shells, structural integrity of pressure vessels components, impefection sensitivity of shell components.

Experience:
Senior Lecturer, Universiti Teknikal Malaysia Melaka, January 2013 – Present
Research in the area of structural integrity of shell components (buckling/collapse of shells, burst pressure of pressure vessel components, imperfection sensitivity of shell structures) and also supervising final year projects in the area of condition based monitoring using oil analysis (viscosity, flash point, water content, wear debris).

Teaching modules in the field of mechanical engineering, i.e., solid mechanics, statics and mechanics, fluid mechanics, materials science, metallurgy, etc.

Honorary Fellow, The University of Liverpool, July 2013 – September 2013, Liverpool, United Kingdom
Theoretical and numerical (ABAQUS FE code) analysis of burst pressure of toriconical shells by subjecting the shells to surge of internal pressure (as it happens in reality).

Research Associate, The University of Liverpool, April 2012 – September 2012, Liverpool
Nonlinear finite element analysis using ABAQUS FE code in order to estimate the flow of heat from the outer surface of the eyelids to all regions of the eyelids and eye globe, with particular interest in: (i) the meibomian glands to determine whether the temperature elevation is sufficient for melting the meibum, (ii) the cornea because of its susceptibility to thermal burns, (iii) the crystalline lens as repeated temperature elevation over long periods of time can lead to cataract, (iv) the retina to ensure the light sensitive ganglion cells do not undergo significant temperature increases that could result in any permanent damage and (v) the optic nerve head because of its importance to the development of glaucoma. Carrying out uniaxial test, i.e., compression test, compression cyclic test and compression relax/creep test using INSTRON machine.

PhD Researcher at the University of Liverpool, October 2007 – July 2011, Liverpool, United Kingdom
My research is concerned with the study of the elastic-plastic buckling of short and relatively thick conical shells subjected to combined loading, i.e., axial compression and external pressure acting simultaneously. The research is both numerical and experimental study. Within the context of numerical study, a nonlinear finite element extensive calculations were carried out using ABAQUS FE code in order to obtain: (i) the failure loads of cones under axial compression only, external pressure only and under combined loading, (ii) the spread of plastic strain and the effect of strain hardening of the material on failure loads, and (iii) the sensitivity of buckling loads to initial geometric imperfections or to structural defects under various loading conditions. Experimental programme involved design, manufacture and operation of test rig capable of tests on thirteen conical specimens CNC machined from mild steel material. Two models were subjected to axial compression, with further two subjected to pure external pressure. The remaining nine cones were subjected to combined action of axial compression and external pressure. Results were compared with available design codes, i.e., ASME B&PVC Section VIII, API RP 2A, BS PD5500, and ECCS. Test data indicates that some recommendations might be unsafe under repeated loading. This is to be urgently addressed by a follow-up work. Worked as undergraduate laboratory demonstrator in mode of failure which involves different failure modes of structures and components, such as buckling, creep, fatigue, torsion test. And also heat treatment of plain carbon steel involving the charpy v-notch impact testing and the jominy hardness test.

Research Interests:
Structural integrity of shells; buckling of shells, imperfection sensitivity

Selected Publications:
2010: Plastic Buckling of Conical Shells, J. Blachut, O. Ifayefunmi, Journal of Offshore Mechanics and Arctic Engineering 132 (4), 041401-1 ...
2012: Buckling of unstiffened steel cones subjected to axial compression and external pressure, J Błachut, O Ifayefunmi, Journal of Offshore Mechanics and Arctic Engineering 134 (3), 031603
2011: Collapse and Buckling of Conical Shells, J Błachut, O Ifayefunmi, M Corfam, Proceedings of the 21st International Offshore and Polar Engineering ...

2012: Combined stability of unstiffened cones–theory, experiments and design codes, O Ifayefunmi, J Błachut, International Journal of Pressure Vessels and Piping 93, 57-68
2013: Interactive buckling tests on steel cones subjected to axial compression and external pressure–a comparison of experimental data and design codes, O Ifayefunmi, Ships and Offshore Structures 9 (6), 669-679
2013: Instabilities in imperfect thick cones subjected to axial compression and external pressure, O Ifayefunmi, J Błachut, Marine Structures 33, 297-307
2011: The Effect of Shape, Thickness and Boundary Imperfections on Plastic Buckling of Cones, O Ifayefunmi, J Błachut, Proceedings of the ASME 2011 30th International Conference on Ocean ...
2015: Plastic buckling of axially compressed thick unstiffened steel cones, O Ifayefunmi, Ocean Engineering 103, 1-9
2014: A survey of buckling of conical shells subjected to axial compression and external pressure, O Ifayefunmi, Journal of Engineering Science and Technology Review 7 (2), 182-189
2013: Effect Of Prebuckling And Edge Support On Bifurcation Buckling Of Torisphere, Cylinder And Cone, O Ifayefunmi, Journal of Engineering Technology 4 (2), 137-148