



Professor Chris D. Bertram

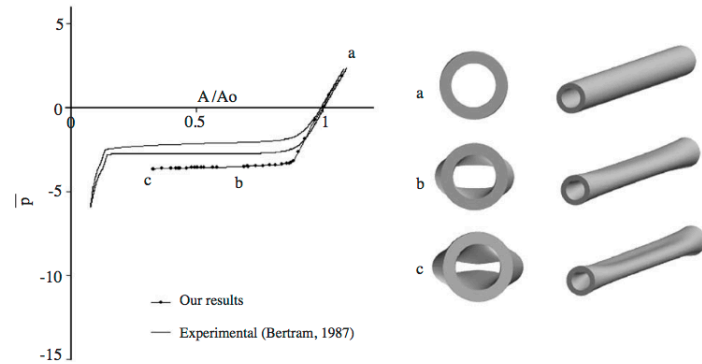


Fig. 18. The computed dimensionless pressure–area relation compared with experimental data of Bertram (1987) for the thick-walled tube case.

From: A. Marzo, X.Y. Luo, C.D. Bertram, Three-dimensional collapse and steady flow in thick-walled flexible tubes, *Journal of Fluids and Structures* 20 (2005) 817–835

See:

<http://www.maths.usyd.edu.au/u/chris/>

<http://sydney.edu.au/science/people/c.bertram.php>

https://www.researchgate.net/profile/C_Bertram

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Biography:

Chris Bertram graduated in Engineering Science in 1971 and gained his doctorate in 1975 with a thesis on ultrasonic measurement of arterial mechanical properties. He then spent two years working in haemodynamics at Johns Hopkins University's Department of Physiology as first a postdoctoral fellow and then a research assistant. From 1977 he experimented on unsteady flow separation and modeled collapsed-tube flows at Cambridge University's Applied Mathematics department (DAMTP), as a research associate of Tim Pedley. In 1980 he was appointed lecturer at the then Centre for Biomedical Engineering of University of New South Wales. He was promoted to senior lecturer in 1985, and to associate professor in 1990, lecturing on signal analysis, medical instrumentation, cardiovascular dynamics, medical imaging and physiological fluid mechanics. He moved to the School of Mathematics and Statistics at University of Sydney in 2010. He has published 89 full papers in peer-reviewed journals, and over 125 conference contributions and other articles. For many years he conducted experiments on self-excited oscillations of collapsed-tube flows, and these investigations still form the most comprehensive investigation of this dynamical system. His current research is on cerebrospinal fluid mechanics, and pumping in the lymphatic system. He has been a member of the World Council of Biomechanics, and an Associate Editor of the *Journal of Fluids and Structures*, and is on the Editorial Board of the journal *Medical & Biological Engineering & Computing*.

Selected Publications:

- C.D. Bertram, T.J. Pedley, A mathematical model of unsteady collapsible tube behaviour, *Journal of Biomechanics* 15 (1982) 39–50.
- C.D. Bertram, Two modes of instability in a thick-walled collapsible tube conveying a flow, *Journal of Biomechanics* 15 (1982) 223–224.
- Bertram, C.D., 1987. The effects of wall thickness, axial strain and end proximity on the pressure-area relation of collapsible tubes. *Journal of Biomechanics* 20, 863–876.
- C.D. Bertram, C.J. Raymond, T.J. Pedley, Mapping of instabilities for flow through collapsed tubes of differing length, *Journal of Fluids and Structures* 4 (1990) 125–153
- Bertram, C.D., Raymond, C.J., 1991. Measurements of wave speed and compliance in a collapsible tube during self-excited oscillations: a test of the choking hypothesis. *Medical and Biological Engineering and Computing* 29, 493–500.
- Bertram, C.D., Raymond, C.J., Pedley, T.J., 1991. Application of dynamical system concepts to the analysis of self-excited oscillations of a collapsible tube conveying a flow. *Journal of Fluids and Structures* 5, 391–426.
- Bertram, C.D., 1995. The dynamics of collapsible tubes. In: Ellington, C.P., Pedley, T.J. (Eds.), *Biological Fluid Dynamics*. Company of Biologists Ltd., Cambridge, UK, pp. 253–264.
- Bertram, C.D., Godbole, S.A., 1997. LDA measurements of velocities in a simulated collapsed tube. *ASME Journal of Biomechanical Engineering* 119, 357–363.
- Bertram, C.D., Castles, R.J., 1999. Flow limitation in uniform thick-walled collapsible tubes. *Journal of Fluids and Structures* 13, 399–418.
- Bertram, C.D., 2003. Experimental studies of collapsible tubes. In: Carpenter, P.W., Pedley, T.J. (Eds.), *Flow past Highly Compliant Boundaries and in Collapsible Tubes*. Kluwer Academic Publishers, Dordrecht, The Netherlands, pp. 51–65.
- Bertram, C.D., Elliott, N.S.J., 2003. Flow-rate limitation in a uniform thin-walled collapsible tube, with comparison to a uniform thick-walled tube and a tube of tapering thickness. *Journal of Fluids and Structures* 17 (4), 541–559.
- A. Marzo, X.Y. Luo, C.D. Bertram, Three-dimensional collapse and steady flow in thick-walled flexible tubes, *Journal of Fluids and Structures* 20 (2005) 817–835
- Bertram, C. D. Flow-induced oscillation of collapsed tubes and airway structures. *Respir. Physiol. Neurobiol.* 163(1–3):256–265, 2008.