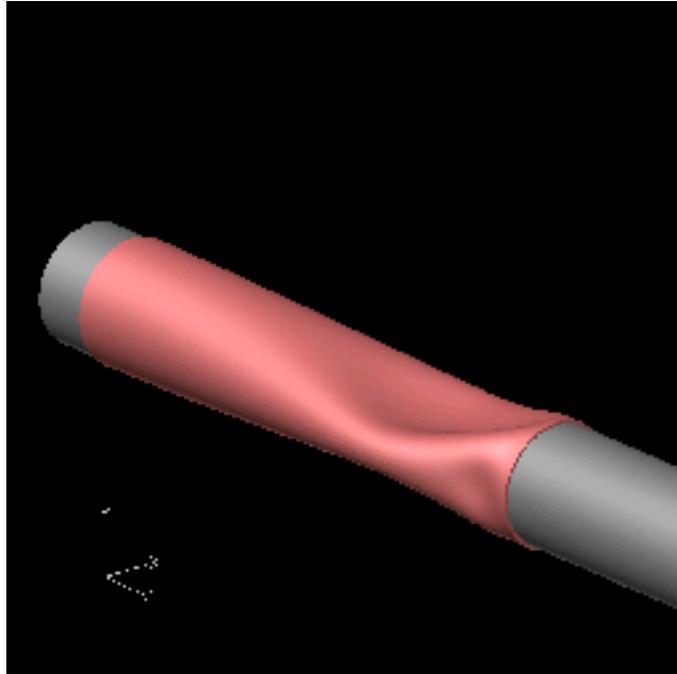


**Professor Xiaoyu Luo (X.Y. Luo)**



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

See:

<http://www.maths.gla.ac.uk/~xl/>

<http://www.gla.ac.uk/schools/mathematicsstatistics/staff/xiaoyuluo/>

[https://www.researchgate.net/profile/Xiaoyu\\_Luo3](https://www.researchgate.net/profile/Xiaoyu_Luo3)

<https://scholar.google.co.uk/citations?user=x4ZTPUIAAAAJ>

Mathematics and Statistics  
University of Glasgow

### **Autobiography:**

In 1978 . . . I accepted an entry-exemption offer from Xi'an Jiaotong University (XJTU) and chose to study theoretical mechanics. I obtained my BEng (1982) and MSc (1985) degrees at XJTU with top grades, and was recruited by the University as a lecturer in 1985. My research was on structure stability analysis. Between 1987-1990, I undertook my PhD study on blood flow in arteries while working as a lecturer. During this time, I also obtained funding from the World Bank and visited the UK for one year as part of the joint-training PhD program. I worked at the Department of Medical Physics & Clinical Engineering at the University of Sheffield. This visit provided an opportunity for me to carry out some experiments on fluid mechanics. I was also exposed to the surgeon's view of blood flow and circulation. Returned to XJTU in 1988, I continued my PhD study on numerical simulations of blood flow in stenotic arteries. In 1990, I successfully defended my Ph.D and graduated with Distinction, and was awarded the "Tang ZhaoQian Scholarship" by Xi'an Jiaotong University; the prize with a gold medal offered to the top PhD student of the year. I was promoted to associate Professor

two years later. In 1992, I took up a post-doctorial research fellowship with Professor T J Pedley, FRS, at the University of Leeds, UK, and worked on fluid flow in collapsible tubes. Together we studied some interesting phenomena, such as flow limitation, and self-excited oscillations. A few years later, I became a lecturer at the Department of Engineering, Queen Mary and Westfield College, University of London, and continued my research on collapsible tube flows. I moved to the University of Sheffield in 1990, and worked as a lecturer/SL at the Department of Mechanical Engineering. I stayed at Sheffield for 5 years, and began to build up a team and widened my research interests to include heart valves, airways, and gallbladders. Presently I work at the School of Mathematics and Statistics, University of Glasgow. I was promoted to Reader/Professor in 2006/2008. I have growing research interests on nonlinear mechanics of heart and soft tissues.

### **Research Interests:**

Modeling and numerical simulation of fluids and structures, especially fluid-structure interaction in physiology. In particular self-excited oscillations in flexible vessels, multi-scale modeling of heart, dynamic and constitutive modeling of mitral valves, vocal folds vibration and snoring, bile flow and gallbladder pain mechanisms.

### **Selected Publications:**

- X.Y. Luo, T.J. Pedley, A numerical simulation of steady flow in a 2-D collapsible channel, *Journal of Fluids and Structures* 9 (1995) 149–174.
- X.Y. Luo, T.J. Pedley, A numerical simulation of unsteady flow in a two-dimensional collapsible channel, *The Journal of Fluid Mechanics* 314 (1996) 191–225.
- X.Y. Luo, T.J. Pedley, The effects of wall inertia on flow in a two-dimensional collapsible channel, *The Journal of Fluid Mechanics* 363 (1998) 253–280.
- T.J. Pedley, X.Y. Luo, Modelling flow and oscillations in collapsible tubes, *Theoretical and Computational Fluid Dynamics* 10 (1998) 277–294.
- X.Y. Luo, T.J. Pedley, Multiple solutions and flow limitation in collapsible channel flows, *The Journal of Fluid Mechanics* 420 (2000) 301–324.
- Z.X. Cai and X.Y. Luo. A fluidbeam model for flow in collapsible channel. *Journal of Fluids and Structures*, 17 (1):123–144, 2003
- 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.
- X.Y. Luo, Z.X. Cai, W.G. Li, T.J. Pedley, The cascade structure of linear stabilities of flow in collapsible channels, *The Journal of Fluid Mechanics* 600 (2008) 45–76.
- Y. Zhu, X.Y. Luo, R.W. Ogden, Asymmetric bifurcations of thick-walled circular cylindrical elastic tubes under axial loading and external pressure, *International Journal of Solids and Structures* 45 (2008) 3410–3429
- Y. Zhu, X.Y. Luo, R.W. Ogden, Nonlinear axisymmetric deformations of an elastic tube under external pressure, *European Journal of Mechanics A/Solids* 29 (2010) 216–229
- H.F. Liu, X.Y. Luo, Z.X. Cai, Stability and energy budget of pressure-driven collapsible channel flows, *Journal of Fluid Mechanics* 705 (2012) 348–370.
- Y. Zhu, X.Y. Luo, H.M. Wang, R.W. Ogden, C. Berry, “Three-dimensional non-linear buckling of thick-walled elastic tubes under pressure”, *International Journal of Non-Linear Mechanics*, Vol. 48, pp 1-14, 2013