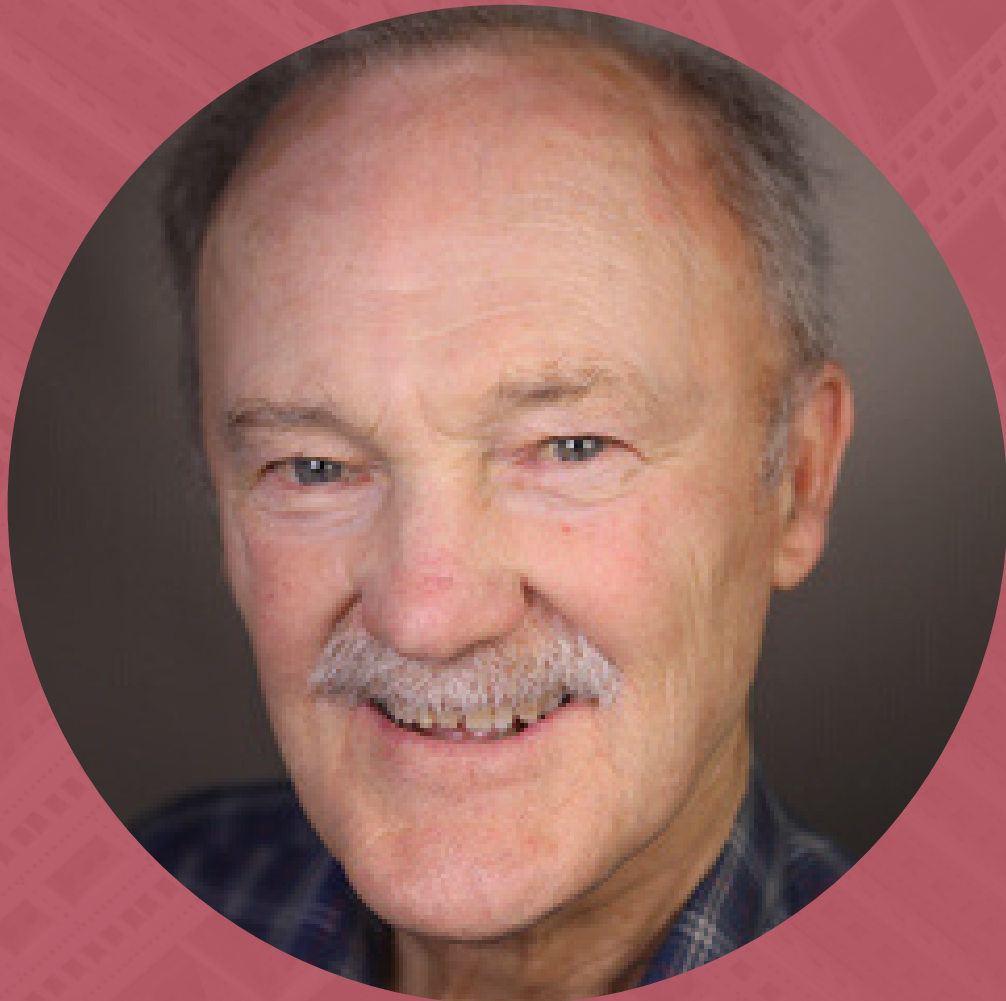


EML WEBINAR

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10 AM, APRIL 15, US EASTERN TIME



JOHN HUTCHINSON

HARVARD UNIVERSITY

NEW DEVELOPMENTS IN SHELL STABILITY

The stability of structures continues to be scientifically fascinating and technically important. Shell buckling emerged as one of the most challenging nonlinear problems in mechanics sixty years ago when it was first intensively studied. The subject has returned to life motivated not only by structural applications but also by the current interest in materials with unusual nonlinear behavior and in developments in the life sciences concerning soft materials. Efforts are underway in China, Europe and the US to update existing design codes for shell buckling to take account the computational and experimental advances which promise to enable less conservatively designed structures. The challenge is that shell structures are susceptible to dramatic load-carrying reductions due to relatively small imperfections in their geometry. Imperfections must be factored into buckling load estimations. Recent work by the speaker and his collaborators on spherical shells subject to external pressure will be used to illustrate some of the new developments in shell stability. In particular, the talk will address buckling mode localization, realistic imperfections, and energy barriers for stability.

Professor Hutchinson has made many groundbreaking discoveries in solid mechanics and inspired researchers worldwide.

Host: Professor Zhigang Suo, Harvard University