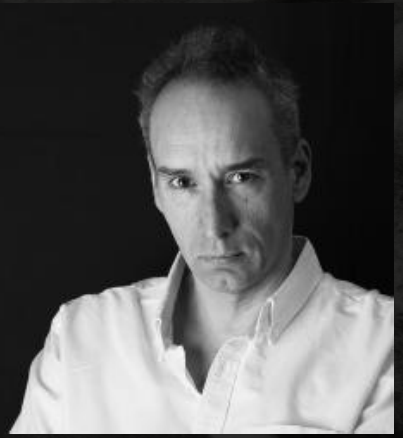
The Mathematical Laws of Morphology and Biomechanics

Tuesday 14th September 2021 noon EDT

Virtual Presentation: https://purdue.webex.com/meet/aselvite



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Ten ways to model growth

Growth is a generic term that describes processes in which the mass of a body changes over time. In biology, the problem of growth is fundamental to all aspects of life, with realizations as diverse as cell division, morphogenesis, development, maintenance, cancer, and aging. All life forms experience growth to some appreciable degree and one of the ultimate challenges of modern biology is to understand the role of the genetic code in transforming cells into fully mature organisms and explaining how these organisms manage to regulate shape and function through growth and remodeling. The mathematical problem of modelling growth consists in formulating these internal variations of mass and explore their consequences. In this talk, I will give a general overview of the problem of growth in biological systems and review different modelling approaches from simple discrete models to sophisticated continuous models and discuss their relative advantages.