

National Central University
Graduate Institute of Applied Geology

Mini Course

Constitutive theory and finite elasticity

Prof. I-Shih Liu

(Institute of Mathematics, Federal University of Rio de Janeiro)

The purpose of this mini-course is to discuss basic notions of finite deformation and basic principles of constitutive theories in Continuum Mechanics. Four lectures each lasting two hours will be conducted. They will consist of the following topics:

Lecture 1. Notations and tensor algebra.

Lecture 2. Kinematics of finite deformation.

Lecture 3. Balance laws of mass, momentum and energy.

Lecture 4. Constitutive theory and equation of finite elasticity.

Lecture notes for each class will be distributed at the beginning of each lecture.

Date & Time : 2/21, 3/6, 3/13, 3/20 (Tuesday), 14:00 ~ 15:50

Location : S253, Science Building 1

~~ **Welcome** ~~

Prof. I-Shih Liu

(Institute of Mathematics, Federal University of Rio de Janeiro)

I-Shih Liu received his PhD in Mechanics from The Johns Hopkins University. He is a leading expert in general and fundamental issues of continuum mechanics and thermodynamics; constitutive theories of material bodies, general entropy principle and method of Lagrange multipliers; theory of mixtures and porous media; numerical problems in continuum mechanics; extended thermodynamics of gases, fluids, and viscoelastic solids; and boundary value problems of extended thermodynamics. He is on the editorial board of Journal of Mathematical Sciences and Journal of Mechanics of Multi-component Materials. He has visited many universities all over the world, including USA, Japan, Germany, Taiwan, Italy, etc. He has published over 100 articles and several of these are highly cited (each over 100 citations). He has also published four books.