

SIPO (Seminario de Investigadores Postdoctorales)

Expositor: Nicolás Barnafi (Pontificia Universidad Católica de Chile)

Título: The Inverse Elasticity Problem.

Summary: In this talk, we will briefly introduce the nonlinear elasticity equations to understand the language of large deformations modeling. After this, we will focus on the much less studied "Inverse Elasticity Problem", whose solution is sometimes referred to as the reference configuration, or stress-free configuration. This problem can be stated as follows: Given a set of known external forces and a ***deformed*** configuration, find an initial (or reference) configuration such that, when the given forces are applied to it, we recover the deformed configuration.

As we will see, the equations of nonlinear elasticity possess a certain duality which allows, in a very "simple" manner, to formulate both the direct and inverse problems, with almost no impact on the problem structure. We will also see some numerical experiments to verify our theoretical claims (if you want). If time allows it, I would also like to discuss some ongoing work on nonlinear poroelastic media.

Date: 9th April 2024 at 2.30PM

Venue: Sala de Seminario John Von Neumann, CMM, Beauchef 851, Torre Norte, Piso 7



