



TUAT Fluid Dynamics Seminar

Cellulose fibrils as a building block for the design of membrane and composite materials



Lecturer: Prof. Dr. Frank Quero

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Date: Friday, February 22nd, 2019

Place: Building 6- Room 501

Time: 10:00 am - 11:00 am

Abstract

This talk will deal with cellulose fibrils, a class of materials that can be obtained from various sources, including plants, tunicates and bacteria.

This talk will present the extraction and characterization of cellulose fibrils obtained from a marine resource and how membranes with highly negative surface charges at $\text{pH} < 4$ can be obtained.

Potential application of these membranes will be discussed. Also, we will show how cellulose fibrils obtained from bacteria and plants can be used as a reinforcement material for the design of composite materials with improved mechanical properties. Experimental data on the quantification of the interfacial interaction between nanocellulose and various polymer matrices by Raman spectroscopy will be shown.

Biographical Sketch

Frank Quero has received his BSc degree in Polymers and Composites (2006) and MSc in Eco-design in Polymers and Composites (2008) from European University of Brittany in France. He has received his PhD degree in Composite Materials (2012) from University of Manchester in United Kingdom. Dr. Quero is currently a Professor of Polymeric Materials in University of Chile located in Chile.

