

Seminar EDPs

Speaker: Jiao He, Université Paris-Saclay (Francia).

Title: Wave-Structure interactions: oscillating water columns in shallow water.

Abstract: Wave energy converters (WECs) are devices that convert the energy associated with a moving ocean wave into electrical energy. In this talk we present a mathematical model of a particular wave energy converter, the so-called oscillating water columns in shallow water regime. This model can be reformulated as two transmission problems: one is related to the wave motion over the stepped topography and the other one is related to the wave-structure interaction where a fixed partially immersed structure is installed. We analyze the evolution of the contact line between the surface of the water and the surface of the structure and we show how to formulate the transmission problem as an initial boundary value problem with a semilinear boundary condition given by an ordinary differential equation. A rigorous well-posedness result of this coupled PDE-ODE will be given as well. Finally, we use the characteristic equations of Riemann invariants to obtain the discretized transmission conditions and show some numerical simulations at the end.

Enlace zoom: Join Zoom Meeting

<https://uchile.zoom.us/j/82509433455?pwd=dXFkbVc5OS92T054YzZBWVJlVWdxQT09>

Meeting ID: 825 0943 3455

Passcode: 352594

Thursday (6/10) at 4:15 pm (Chilean time).