Jessica GUERAND: Effective boundary conditions for Hamilton-Jacobi equations

Abstract:

In this presentation, we introduce a result about dynamic boundary conditions for Hamilton-Jacobi equations of first order. It is well-known that stability and existence of viscosity solutions are assured when the boundary condition is relaxed (i.e. at the boundary, either the boundary condition or the equation in the interior of the domain is satisfied). Here, we will exhibit all the boundary conditions for which stability and existence of solutions are valid in the strong sense (i.e. at the boundary, only the boundary condition is satisfied). Moreover, considering the equivalence relation « to have the same solutions », we will see that many boundary conditions are in the same equivalence class. Also in each class there exists a unique boundary condition satisfied in the strong sense. We will explain the relation between a general boundary condition and the one in its class which is satisfied in the strong sense.