



Universidad de  
**los Andes**



**FACULTAD  
DE INGENIERÍA  
Y CIENCIAS  
APLICADAS**

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# **Finite Elements**

## **Homework N°3 - Final Report**

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## 1 Introduction

Over the course of this exercise, we have deepened our understanding of three core aspects. Comprehending the Quad4 and Quad9 elements, implementing desing and analysis of structures on GMSH *software* and optimizing the strcutures depending on its internal stresses and displacements.

## 2 Results

As the complete stucture to analize was symmetrical, only a half of it was modeled with a transfinite mesh and studied, as shown bellow.

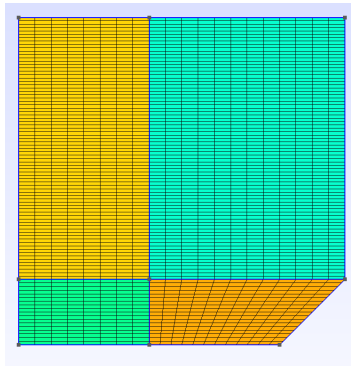
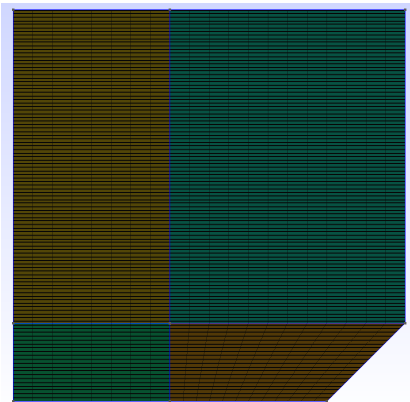
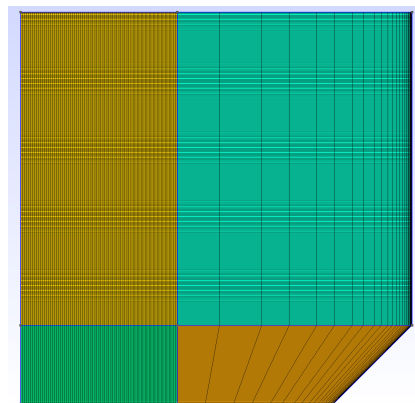


Figure 1: Half structure modeled in GMSH

The results of refining the mesh globally and locally are shown in the following figures.



(a) Global mesh refinement



(b) Local mesh refinement