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| **Título del TFG/TFM / GAL/MALaren izenburua: Analysis of the validity of the Kirchhoff and Mindlin plate theory for plate vibrations** | |
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**Inglés / Ingelesa**

**Abstract** ***(Resumen de 100-250 palabras)/*** **Abstract** ***(Laburpena 100-250 hitzetan)***

The main objective of this thesis is to make a comparison between the "Classical Plate Theory" (Kirchhoff's) and the "First Order Shear Deformation Theory" (Mindlin's) as well as to define the range of validity of both theories. The geometrical and frequency limits for the validity of each theory are defined.
To determine the range of validity of Kirchhoff and Mindlin theories, eigenfrequencies for several modes of vibration will be calculated with a FEM program for plates with different geometries and boundary conditions. A three dimensional element type will be used to calculate the reference solution. After that, the same modes are obtained with Mindlin and Kirchhoff plate elements and then the results are compared. The obtained results for the range of validity of both theories are presented in graphs showing the frequency and thickness limits for both theories.

**Materias o Palabras Clave (*máximo 5*) / Gaiak edo hitz gakoak (*gehienez 5*)**

Plates, Vibrations, Kirchhoff, Mindlin ,