Mathematical modeling of tensor structures

Caroli Machado[1], **M. Eugenia Rosado**[2], **Sonia L. Rueda**[2]

In the last forty years, there has been a rapid growth of the use of tensile structures. The design possibilities, for the shape of such structures, are constrained by the need of establishing a form that is physically possible, that is a form of 'equilibrium'. This poster reviews the main existing methods, based on the modelization of a membrane as cable net, to reach forms of equilibrium: Transient Stiffness Method, Dynamic Relaxation Method and Force Density Method. Special attention will be given to the Force Density Method, which is commonly used in existing software for this purpose.

[1]Master en Tecnología y Construcción arquitectónicas. Dept. Construcción. E.T.S. Arquitectura. Universidad Politécnica de Madrid.

[2]Departamento de Matemática Aplicada. E.T.S. Arquitectura. Universidad Politécnica de Madrid.

e-mail: eugenia.rosado@upm.es, sonia.rueda@upm.es.