
Variational formulation for the form finding of light-weight structures

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Abstract

In this work a new variational principle for the form finding of membranes and cable nets is presented. In the case of minimal surfaces the principle offers the interpretation of a minimal surface, as an equilibrium surface with a vanishing Eshelby stress tensor. The proposed approach generalizes the force density method presenting a non singular Hessian at the optimal solution. Application to metamaterials is one of the scope of the research

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