AN EXPECTED COMPLIANCE MODEL BASED ON TOPOLOGY OPTIMIZATION FOR DESIGNING STRUCTURES SUBMITTED TO RANDOM LOADS

MIGUEL CARRASCO, BENJAMIN IVORRA, RODRIGO LECAROS, AND ANGEL MANUEL RAMOS

Abstract. In this paper, we focus in developing a stochastic model for topology optimization. The principal objective of such a model is to find robust structures for a given main load having a stochastic behavior. In the first part, we present the expected compliance formulation and some results in topology optimization. Then, in order to illustrate the interest of our approach, we consider a preliminary 3D cantilever benchmark experiment and compare the obtained results with the one given by a single load approach.

Mathematics subject classification (2010): 35Q74, 74B05, 74P05, 74S60.

Keywords and phrases: topology optimization, structural optimization, expected compliance model, finite element method.

REFERENCES
