Download Structural Optimization Under

Porosity is a well-known phenomenon occurring during various manufacturing processes (casting, welding, additive manufacturing) of solid structures, which undermines their reliability and mechanical performance.This paper presents algorithms for solving structural topology optimization problems with uncertainty in the magnitude and location of the applied loads and with small uncertainty in the location of the structural nodes.The present paper studies the reliability-based structural optimization of the civil engineering in the seismic zone. The objective is to minimize the sum of construction material cost and the expected failure loss under severe earthquake, which is obtained by the sum of the products of the failureAn optimization framework is developed to minimize structural weight of the front-frame of heavy-duty trucks while satisfying stress constraint.