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**Multicriterion reliability-oriented optimization of structural systems by stochastic programming.** (English) [Zbl 0896.90105](#)

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Summary: The paper deals with multicriterion reliability-oriented optimization of truss structures by stochastic programming. Deterministic approach to structural optimization appears to be insufficient when loads acting upon a structure and material properties of the structure elements have a random nature. The aim of this paper is to show importance of random modelling of the structure and influence of random parameters on an optimal solution. Usually, quality of engineering structure design is considered in terms of displacements, total cost and reliability. Therefore, optimization problem has been formulated and then solved in order to show interaction between displacement and a total cost objective function. The examples of 4-bar and 25-bar truss structures illustrate our considerations. The results of optimization are presented in the form of diagrams.

Reviewer: [Reviewer \(Berlin\)](#)

**MSC:**

[90B25](#) Reliability, availability, maintenance, inspection in operations research

[74P99](#) Optimization problems in solid mechanics

[90C90](#) Applications of mathematical programming

[90C15](#) Stochastic programming

[90C29](#) Multi-objective and goal programming

**Keywords:**

[multicriterion reliability-oriented optimization; truss structures](#)

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