

Comparison of Different Data Acquisition Techniques for Shape Optimization Problems

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Abstract : Non-linear FEM calculations are indispensable when important technical information like operating performance of a rubber component is desired. Rubber bumpers built into air-spring structures may undergo large deformations under load, which in itself shows non-linear behavior. The changing contact range between the parts and the incompressibility of the rubber increases this non-linear behavior further. The material characterization of an elastomeric component is also a demanding engineering task. The shape optimization problem of rubber parts led to the study of FEM based calculation processes. This type of problems was posed and investigated by several authors. In this paper the time demand of certain calculation methods are studied and the possibilities of time reduction is presented.

Keywords : rubber bumper, data acquisition, finite element analysis, support vector regression

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