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Selected Publications:

Reiner Reitinger

Stabilität und Optimierung imperfektionsempfindlicher Tragwerke.

Ph.D. thesis, Bericht Nr. 17, Institut für Baustatik, Universität Stuttgart, 1994

Reiner Reitinger, Ekkehard Ramm

Optimization of Geometrically Nonlinear Structures by Accurately Locating Singular Points.

Proceedings of the 1st World Congress of Structural and Multidisciplinary Optimization, Goslar, Germany, May 28 - June 2, 1995, pp. 471-476

Reiner Reitinger, Ekkehard Ramm

Maximizing Structural Efficiency Including Buckling and Imperfection Sensitivity

Proceedings of the 5th AIAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization, Panama City, Florida, September 7-9, 1994, pp. 1228-1238

Reiner Reitinger, Ekkehard Ramm

Optimization of Geometrically Nonlinear Buckling Sensitive Structures

In : 'Optimization of Structural Systems and Applications', Proceedings of the 3rd International Conference on Computer Aided Optimum Design of Structures' (OPTI '93). (eds. S. Hernández, C.A. Brebbia), Zaragoza, Spain, July 1993, Elsevier, 1993, pp. 525-540

Reiner Reitinger, Ekkehard Ramm

Explicit Approximation of Equality Constraints.

In : Hernández, S., Brebbia, C.A. (ed) Optimization of Structural Systems and Applications, pp. 555-567, Proceedings of OPTI '93, July 7.-9., Zaragoza, Spain. London, New York : Elsevier Applied Science. , 1993

Reiner Reitinger, Kai-Uwe Bletzinger and Ekkehard Ramm (Institut für Baustatik, Universität Stuttgart, Pfaffenwaldring 7, D-70550 Stuttgart, Germany), "Shape optimization of buckling sensitive structures",

Computing Systems in Engineering, Vol. 5, No. 1, February 1994, pp. 65-75,

doi:10.1016/0956-0521(94)90038-8

ABSTRACT: The optimal design of structures with distinct geometrically non-linear behavior has attracted a great deal of interest in the last years mainly with respect to sizing for prescribed external loads. In the present contribution a method is proposed to maximize the critical load under certain constraints, e.g. for a given volume, allowing varying shape as well as cross-sections. The combination of direct computation of the critical load and path-following methods is integrated into a general optimization procedure consisting of mathematical programming techniques, sensitivity analysis and computer aided geometric design methods. The formulation includes imperfection sensitivity as an important part within the optimization process.

R. Reitinger and E. Ramm (Institute of Structural Mechanics, University of Stuttgart, Stuttgart, Germany),
“Buckling and imperfection sensitivity in the optimization of shell structures”, *Thin-Walled Structures*, Vol. 23,
Nos. 1-4, 1995, pp. 159-177, Special Issue: Buckling Strength of Imperfection-sensitive Shells,
doi:10.1016/0263-8231(95)00010-B

ABSTRACT: The subject of the present study is the optimization of structures with geometrically nonlinear behaviour allowing the inclusion of instability phenomena and imperfection sensitivity in the structural design. The proposed optimization procedure is based on the methods of path following, direct computation of bifurcation and limit points and an accurate and efficient sensitivity analysis. The finite element method is used for the structural analysis. These techniques are used together with mathematical programming schemes and methods of computer-aided geometric design.

Ramm E, Bletzinger K-U, Reitinger R. Shape optimization of shell structures. *IASS-Bulletin of the Int. Ass. for Shell and Spatial Structures* 1993; 34: 103-121