# Optimum design techniques for the mechanical Structure and Its Applications to CAD/CAM Systems

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# 1986 Fiscal Year Final Research Report Summary

## Optimum design techniques for the mechanical Structure and Its Applications to CAD/CAM Systems

Research Project

### Project/Area Number

60302038

### Research Category

Grant-in-Aid for Co-operative Research (A)

### Allocation Type

Single-year Grants

### Research Field

材料力学

### Research Institution

Kanazawa University

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### Project Period (FY)

**1985 – 1986**

### Keywords

Optimum Design / Structural Design / CAD / CAM system / 汎用プログラム

### Research Abstract

The optimum design technique for the mechanical structures subjected to several load conditions is studied. Computational mechanics such as the finite element method and the boundary element method, fracture mechanics, system engineerring and several programming techniques are applied to this study.

Formulation technique for the optimum design problems, that is to determine design objective functions, design variables and design constraint conditions, is considered. Using these results, programming system of structural synthesis is studied and the application to CAD/CAM system is considered.

## Research Products (14 results)

All  Other

All  Publications (14 results)

[Publications] 尾田十八: システムと制御. 30. 147-155 (1986)

[Publications] Juhachi ODA;Masashi USHIROJI: Computational Mechanics'86. 1. (1986)

[Publications] Kouetsu YAMAZAKI;Juhachi ODA: Computational Mechanics'86. 2. 9 (1986)

[Publications] 三木光範: システムと制御. 30. 137-146 (1986)

[Publications] Masao TANAKA;Yasuyuki SEGUCHI: Computational Mechanics. 1. 243-257 (1986)

[Publications] 室津義定,岸光男: システムと制御. 30. 156-165 (1986)

[Publications] 尾田十八他: "機械構造設計の最適化手法に関する調査研究分科会成果報告書" 日本機械学会, 478 (1987)

[Publications] 瀬口靖幸,尾田十八,室津義定: "機械設計工学2(システムと設計)" 培風館, 215 (1987)

[Publications] Juhachi ODA: "Optimum Design Techniques for Structural Systems" Systems and Control. 30. 147-155 (1986)

[Publications] Juhachi ODA and Masashi USHIROJI: "Stress Analysis of FRP Bonded Structure and Its Considerations" Computational Mechanics '86. 1. <IV> 167- <IV> 172 (1986)

[Publications] Kouetsu YAMAZAKI and Juhachi ODA: "Optimum Shape of Elastic Inclusion in Infinite Elastic Solid under Triaxial Stress Field" Computational Mechanics '86. 2. X83-X89 (1986)

[Publications] Mitsunori MIKI: "Materials System Design" Systems and Control. 30. 137-146 (1986)

[Publications] Yoshisada MUROTSU and Mitsuo KISHI: "Probablilistically Optimum Design of Structural Systems" Systems and Control. 30. 156-165 (1986)

[Publications] Juhachi ODA etc.: "Research Report on Optimum Techniques for Mechanical Structural Design" The Japan Society of Mechanical Engineers. 478 (1987)

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