





LESによる強制振動角柱に作用する変動風力の解析

LARGE EDDY SIMULATION OF UNSTEADY PRESSURE FIELD ACTING ON OSCILLATING PRISM

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ABSTRACT

Unsteady velocity-pressure fields around an oscillating square prism are analyzed by means of Large Eddy Simulation (LES). The accuracy of the numerical results is assessed by comparison with experimental data

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Key Words: LES, Oscillating prism, Unsteady pressure field

1. はじめに

著者らは既報において2次元角柱周りの流れに対してLESの2次元計算、3次元計算を比較し、3次元LESの結果が静止角柱に作用する

本文

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論文の最後

参考文献

- 1) Bearman, P.W. and Obasaju, E.D.: An Experimental Study of Pressure Fluctuations on Fixed and Oscillating Square-section Cylinders, *J. Fluid Mech.*, vol.119, pp.297-321, 1982
 - 2) Hirt, C.W. et al.: An Arbitrary Lagrangian-Eulerian Computing Method for All Flow Speeds, *J. Comp. Phys.*, 14, pp.227-253, 1974
 - 3) 環境良子, 構造剛, 風工学, 2次元角柱周辺の乱流数値解析(その2), 日本建築学会大会学術講演梗概集, pp.209-210, 1991

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1. INTRODUCTION

Distributions of the fluctuating surface pressure and the wind forces acting on bluff-shaped bodies are of great practical interest in the field of structural

Text

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REFERENCES

- 1) Bearman, P.W. and Obasaju, E.D.: An Experimental Study of Pressure Fluctuations on Fixed and Oscillating Square-section Cylinders, *J. Fluid Mech.*, vol.119, pp.297-321, 1982
 - 2) Hirt, C.W. et al.: An Arbitrary Lagrangian-Eulerian Computing Method for All Flow Speeds, *J. Comp. Phys.*, 14, pp.227-253, 1974
 - 3) Kankyo, Y., Kozo, T. and Kazeko, M., Numerical Study on Air Flow around 2D Square Prism (Part 2), Summaries of Technical Papers of Annual Meeting Architectural Institute of Japan, pp.209-210, 1991 (in Japanese)