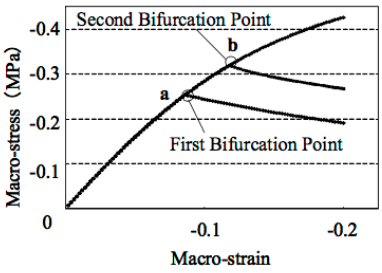
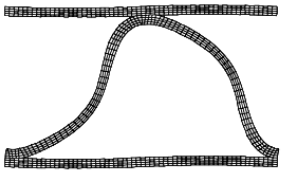


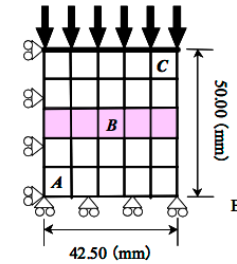
(a) Homogenized Stress-Strain Curve

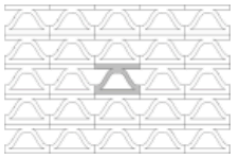


(b) Bifurcation mode at a

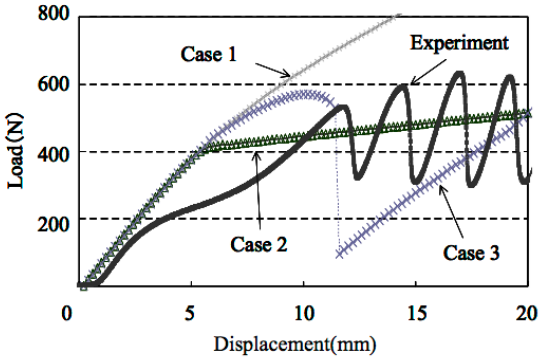
Figure 1. Microscopic response of Corrugated Fiberboard

Professor Hirohisa Noguchi





(a) Analysis model



(b) Load-Displacement Curve

Figure 2 Macroscopic response of Corrugated Fiberboard

From: Noguchi, H, Ohno, N and Okumura, D., "Multiscale buckling analyses of corrugated fiberboard", XXI ICTAM, 15-21 August, 2004, Warsaw, Poland

See:
http://hirongc.blogspot.com/

Chair of the Center for Space and Environment Design Engineering
Dept. of System Design Engineering
Keio University, Yokohama, Japan

Summary of Professional Career:
Professor Hirohisa Noguchi received his Bachelor degree of Engineering from University of Tokyo in 1982. He worked for Mitsubishi Research Institute as a senior researcher from 1982 to 1989. In 1989, He was a visiting scholar in University of California at Berkeley. He was later a research associate in Research Center for Advanced Science and Technology, University of Tokyo from 1989 to 1994. He received his Doctoral degree of Engineering from University of Tokyo in 1994. From 1994 he has been working for Keio University. He was an assistant professor from 1994 to 1996, an associate professor from 1996 to 2002 and is currently a professor in the department of System Design Engineering.

Research Interests and Accomplishments:
His areas of interest include the formulation of nonlinear finite element method and mesh free method in solid and structural mechanics and their applications to industrial problems. One of his major contributions to computational mechanics is development of a new analysis method for bifurcation buckling of large-scale

structures, called the Scaled Corrector Method. He applied this method to the buckling of cylindrical shells, the deployment and retracting analyses of space mast, the 3D plastic instability analyses of tensile specimen and the micro-macro bifurcation buckling analyses of periodic structures, such as a honeycomb. The other contributions are development and application of meshfree methods. He enhanced the element free Galerkin method to analyze the arbitrary thin curved structures: He first developed the formulation of meshfree methods for thick/thin shell structures. Coupling with the arbitrary Lagrangian-Eulerian method, he also showed the possibility of the methods to analyze cable reinforced membrane structure with moving discontinuity of slope. Recently, he has developed a method to handle material interface simply and accurately in meshfree methods. He has applied the method for the analysis of large deformation of rubber-like structures with inclusion, fluid-structure interaction problems, structural topology optimization with multiple materials and arbitrary folded shells/plates. He has published more than 70-refereed scientific papers on the major international and domestic journals. Internationally he was awarded K. Washizu medal at the ICCES conference in 2002. He was recently awarded the first Kawai medal from Japan Society for Computational Engineering and Science. He is also appointed as an Erasmus Mundus Invited Professor of Master Course of Computational Mechanics in European Union, 2008.

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18) Miyamura, T., Noguchi, H., et al., Elastic-Plastic Analysis of Nuclear Structures with Millions of DOFs Using the Hierarchical Domain Decomposition Method, Nuc. Eng. and Design, Vol. 212, 2002, 335-355
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