



DEPARTMENT OF MECHANICAL ENGINEERING
Purdue School of Engineering and Technology

SPRING 2003 SEMINAR SERIES

Date: Thursday, April 17, 2003
Time: 11:00 am - 12:00 pm
Room: SL 165

Reception at 10:45 am (cookies and refreshments served)
Everyone is invited

**Parallel Processing Techniques for the Nonlinear
Dynamic Analysis of Structures**

Elisa D. Sotelino

*Associate Professor, School of Civil Engineering
Purdue University, West Lafayette, Indiana*

Abstract. The realistic simulation of the behavior of structures under dynamic loading is computationally intensive. Parallel and distributed computing can provide this needed computational power. However, the effective utilization of parallel and distributing computing processing requires the development of suitable algorithms. In the presentation, the basic concepts involved in parallel and distributed computing will be discussed. This will be followed by the description of a parallel algorithm that has been developed to efficiently solve nonlinear structural dynamics problems. Finally, the efficiency of the algorithm will be discussed using the results of an application.

About the Speaker: Dr. Elisa D. Sotelino is Associate Professor of Civil Engineering at Purdue University, W. Lafayette, IN. She received her M.S. degree in Applied Mathematics from Brown University in 1988, and Ph.D. from the same institution in Solid Mechanics in 1990. She also holds B.S. and M.S. degrees from Brazil. Dr. Sotelino has been with Purdue University since 1990. Her research interests are in nonlinear finite element analysis; structural dynamics; high performance computing; emerging computing technologies; material constitutive modeling; and structural applications of fiber reinforced polymers. She has published extensively and conducted several funded research projects in these areas.