

CE 8930 – Structural Health Monitoring, Spring 2014

6th Class Exercise

The Eigensystem realization algorithm (ERA) (Juang and Pappa 1985) is a time-domain technique that is widely used for identifying modal parameters. You can download a MATLAB script for the ERA method from BB. To use this script, the responses must be measured synchronously (single hammer excitation location with multiple measurement locations).

The Rational Fraction Polynomial (RFP) (Richardson and Formenti 1982) is a frequency domain technique that is also widely used for identifying modal parameters. You can download a MATLAB script for the RFP method from BB.

Download the provided scripts, and use the experimental data you collected from the plate last week to identify natural frequencies and mode shapes. Check the orthogonality of the calculated mode shapes using the Modal Assurance Criterion Liz showed in her presentation. Then, locate the errors in your measurements using Coordinate Modal Assurance Criterion Liz showed in her presentation.