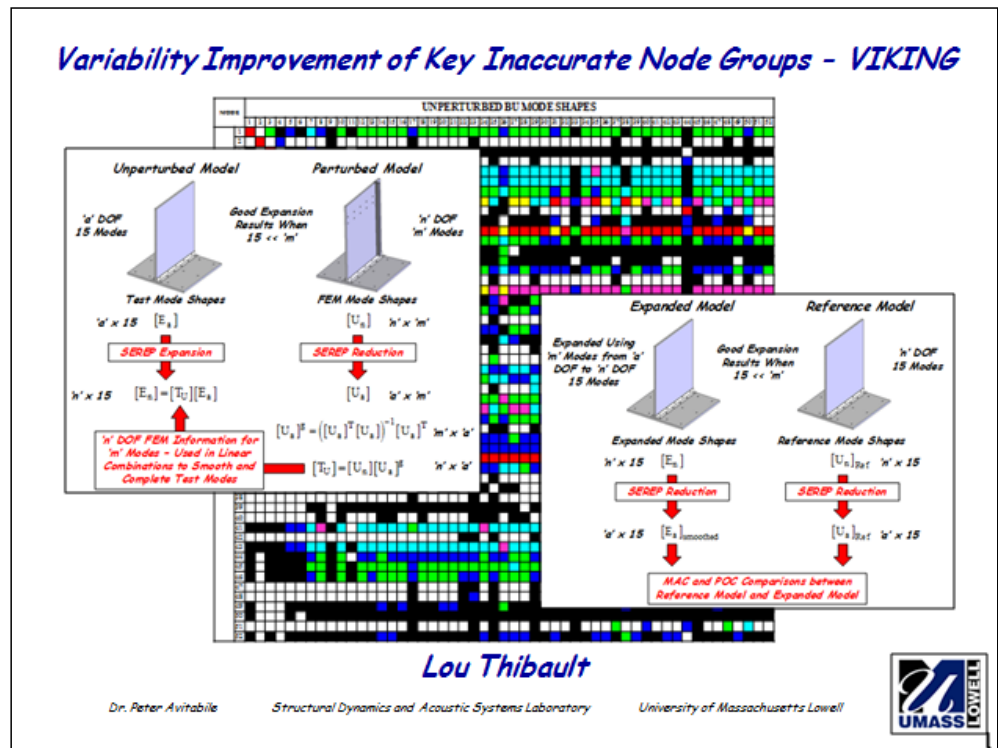




RESEARCH – LOU THIBAUT

Variability Improvement of Key Inaccurate Node Groups



Expansion processes have been used for modal correction studies for some time now. In general, the expansion process was believed to be most accurate when there was a fairly good correlation between the analytical and experimental mode for which expansion was to be performed. If the correlation was not reasonably good then the expansion process would be tainted by the lack of adequate correlation. In essence this is similar to any least squares minimization approach that is used to expand and complete data.

However, some recent work suggests that using many shape expansion functions simultaneously may have some merit as an expansion process. Using many shapes simultaneously is a very good alternate approach and overcomes the requirement of having well correlated modes for the expansion process. As such, a new approach for expansion called the Variability Improvement of Key Inaccurate Node Groups (VIKING) has been developed and used in a variety of applications including expansion of measured data sets. The basis of the approach is described in this work. Several test cases are studied to show the usefulness of the technique in a variety of applications.