

Group 3 of the Los Alamos National Laboratories Dynamic Summer School class of 2001 continued the project done by the class of 2000 on detecting joint damage in the "bookshelf" structure. The primary object of the project was to detect damaged joints in a steel frame structure using statistical analysis of time history data. The secondary objective was to perform a modal analysis of the structure, the results of which were to be correlated with a finite element model constructed by Daniel Stinemat. The 2001 group used similar testing methods and the same testing equipment as the original project done in 2000. To extend the results of the original project, the 2001 group investigated the affects of different types of variability on the structure and implemented a Sequential Probability Ratio Test (SPRT) to classify the time signals used for damage detection.