Nuclear Structure and Decay Data Evaluations
of the Georgia Tech Group
U.S. Nuclear Data Program Meeting
May 1-2, 2003

The program of horizontal systematics at Georgia Tech is most succinctly described as "mining the ENSDF Library for global nuclear structure features". The Georgia Tech Nuclear Data Search Engine (GTNDSE) is a perl script which has been developed to assist in extracting data from a database of ENSDF-formatted A-chain data files for requested nuclear data.

In the first phase of testing GTNDSE, we undertook to extract all B(E2) values for all doubly-even nuclei from the database. The program delivered ∼3100 measured B(E2)'s and an additional ∼500 entries which included comments and calculated B(E2) limits. Two tab-delimited text files were output: one file which contained the measured B(E2) data and one which listed other records which contained the string "B(E2)"for line-by-line inspection of the database for comparison.

Version 1 of GTNDSE was limited by the available queries (extraction of B(EL) and B(ML) values or tabulation of adopted levels and gamma rays associated with a nuclide or with a beta decay parent) and by the fixed output format. Modifications to the code allow the user to select what data will be extracted from the database and to choose the format for the output.

The modified code will be tested by extracting B(M1) systematics and by searching for K-isomers. While the B(M1) compilation does not require any changes to the present GTNDSE code, it will serve to check that no data is lost by any changes. The K-isomer search will require a high level of flexibility for both the type of data queried and the output format in order to analyze the output.

Plans for the future include adapting GTNDSE to a common gateway interface (CGI) format in preparation for disseminating the code via the web. The current text interface requires familiarity with the code (i.e., it lacks a user-friendly interface) and the present text output requires additional effort

to reorganize the data in a spreadsheet for further analysis. Documentation will include instructions for using GTNDSE and tabulations of the data extracted in testing the code.