§1. New Database System through WWW

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In the Data and Planning Center the database system has been developed for the bibliographic and numerical atomic and molecular databases for fusion research. The data compilation and evaluation of atomic and molecular numerical data was initiated by working groups organized by Professors K. Takayanagi, H. Suzuki et al. in our former institute (Institute of Plasma Physics, Nagoya Univ.) in 1975. This work was continued in Research Information Center in IPP from 1979 to 1989 including surface data and was taken over in the Data and Planning Center since 1989. The retrieval and display system for the numerical database was developed as a joint research program and has been opened since 1981 through MSP computer.

In 1997 we reconstructed the database system to be accessible via World Wide Web with using a relational database managing system (ORACLE) and the system becomes easier to access and retrieve data. All our databases are now opened through internet for users who made registration or have ID accounts for the NIFS main frame computer of the computer center. We open the database for researchers in the world for scientific research purpose. The access address is URL= http://dbshino.nifs.ac.jp/. From this page the pages for the user registration and for the short description of the database are linked.

We have four kinds of bibliographic database and four kinds of numerical atomic and molecular database. The explanation for the databases are given in Table I in the introduction of the Data and Planning Center in this volume.

Figure 1 shows the page for setting selection conditions of FUSION bibliographic database. Users may specify published year, author names, first author name, free index, subject index, title, journal name, and so on, with using 'AND', 'OR', 'NOT', '(', and ')' to combine conditions. When the selection conditions hit records, results are returned and users can select items to be displayed, such as title, abstract, and author names.

Figure 2 shows the output page for AMDIS IONIZATION. Users can retrieve the data by element name, initial ionic state, final ionic state, author names, and so on. The database have bibliographic information as well as numerical data tables. Users can make plots with numerical data to compare selected data and the figure can be down-loaded as a PostScript file.

The help pages for each web page have been prepared to inform item names, how to set selection conditions, how to draw plots and so on.

Figure 1: Page for setting selection conditions for Bibliographic database FUSION. Italic characters show an example of typed conditions.
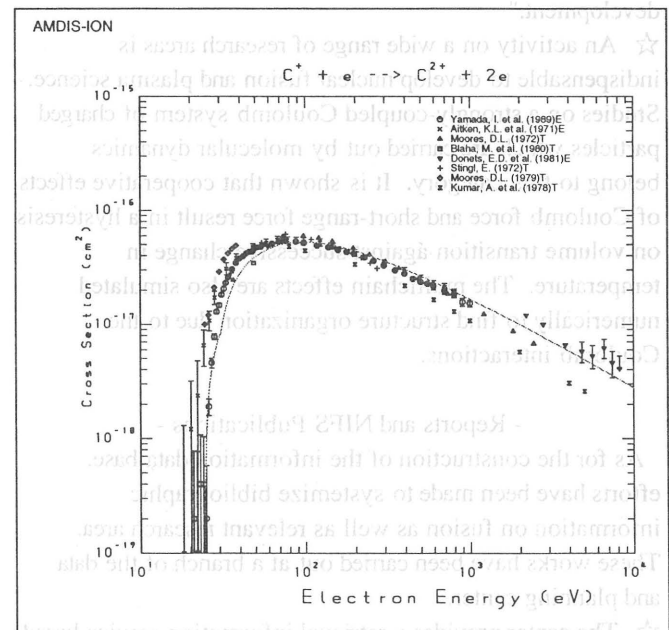

Figure 2: Output page for AMDIS IONIZATION. Ionization cross sections for $C^+ + e \rightarrow C^{2+} + 2e$ are plotted with the Lotz's empirical formula (dashed line). Experimental and theoretical data from several references are shown with different symbols.