§22. LAMP Prototype Bibliography Databases

Pichl, L., Suzuki, M. (Univ. of Aizu)
Kimura, M. (Grad. Sch. of Sci., Kyushu Univ.)

LAMP is a free-software open-source solution for databases with on-line access. Unlike from commercial database system, it is available at zero software (SW) cost. We have therefore developed a prototype bibliography database for electron-molecule collision data (list of relevant articles was provided by Prof. Y. Itikawa) using LAMP SW technology, and a server PC donated to the Coordination Research Center. The present database differs from the ORACLE bibliography system used by NIFS in the following two points: (1) more general search fields (category; type of collision process and target molecule) and (2) inclusion of abstract text (in HTML format) and full text links in the bibliography database. This particular work is a part of a broader study on the applicability of Linux database systems to Data Centers, involving various subprojects in computer sciences and physics, with the ultimate goal of database cost reduction.

Data in the present electron-molecule scattering bibliography database are classified into the following fields: author, year, journal, volume, title, category, and molecule/process [1-2]. Abstract text and link to full text in pdf format is also available [2]. The online search interface and data format is shown in Fig. 1.

The database in Fig. 1 is useful in two aspects: it provides well-organized references to electron-molecule scattering collected by Prof. Y. Itikawa, but also demonstrates that free-software open-source databases are enough secure and inexpensive (honorary for programming work by college students is safely bound to 3% of the commercial cost).

Next, we proceeded to develop a more advanced bibliography database system, which retrieves articles from online publishers and inputs data into the database automatically as shown in Fig. 2, saving much labor cost of part-time workers, who usually handle data manually.

![Fig. 2. Robot system for retrieval, extraction and data input of journal articles, their abstracts and full text URLs.](image)

The above electronic robot (with working name "Evolutionary database") [3] retrieves journal articles from databases of APS and IOP according to predefined queries, processes and extracts cataloguing strings, and inputs html abstracts and links to full text articles. On the basis of this system, we also developed a joint search tool, which bridges APS and IOP databases [4]. Future work in progress covers databases of numerical data, differential cross-section databases and a database builder.

References (URLs)
1) http://crdb.nifs.ac.jp/bib/ititop.php
2) http://crdb.nifs.ac.jp/itit/list/list_top.php
3) http://crdb.nifs.ac.jp/evodb/evodb_top.php
4) http://crdb.nifs.ac.jp/j_search/js_top.php