

**NIFS databases for atomic and molecular collisions and plasma-wall interaction**

Daiji Kato, Izumi Murakami, Takako Kato, Masatoshi Kato

*Atomic and Molecular Data Research Center, National Institute for Fusion Science  
(NIFS), Toki 509-5292, Japan*

*kato.daiji@nifs.ac.jp*

*Domain* : Fusion, Low Temperature Laboratory Plasmas, Plasma Processing

NIFS databases include cross sections and rate coefficients for electron and heavy particle collisions with atoms and molecules and sputtering yields and reflection coefficients of solids. The data can be retrieved via web browsers (database server: <https://dbshino.nifs.ac.jp>). Graphic output and bibliographic information about data sources are also available. The database server machine and system has been renewed in 2005 to meet increasing data needs and access to the database. Access is free for academic research purposes, once registered [1].

A working group of atomic and molecular physicists is organized under the auspices of NIFS to coordinate data research and compilation. Molecular data are required for fusion, process, atmosphere and radiotherapy. Since 2001, molecular databases (AMOL: electron collision and CMOL: heavy particle collision) have been developed. Cross section data for electron and ion collisions with the molecules of hydrogen, hydrogen isotopes, nitrogen, oxygen, hydrocarbons, water and carbon oxide were updated by the working group [2].

- [1] A part of the database for electron-impact ionization and excitation of atoms (AMDIS-EXC/ION) is available without registration in a data retrieval system of IAEA, GENIE (<http://www-amdis.iaea.org/GENIE/>).
- [2] Mineo Kimura *et al.*, to be published in NIFS-DATA (2006).