NIST Atomic Databases and Units Markup Language

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Domain : Other

At the National Institute of Standards and Technology (NIST), the Office of Electronic Commerce in Scientific and Engineering Data (ECSED) coordinates and facilitates the electronic dissemination of Physics Laboratory (PL) information. ECSED is responsible for PL World Wide Web (WWW) pages at http://physics.nist.gov. ECSED is also engaged with PL Divisions and the NIST Standard Reference Data Program in developing physical reference databases for WWW dissemination. A list of available databases can be found at http://physics.nist.gov/data.

In collaboration with the Atomic Physics Division the following databases are available online:

- Atomic Spectra Database

- Fundamental Physical Constants Database

- Electron-Impact Ionization Cross Section Database

- Handbook of Basic Atomic Spectroscopic Data

- SAHA Plasma Population Kinetics Database

- Spectrum of Platinum Lamp for Ultraviolet Spectrograph Calibrations

- Ground Levels and Ionization Energies for the Neutral Atoms

- Bibliographic Databases are available for Atomic Energy Levels and Wavelengths, Atomic Transition Probabilities, Atomic Spectral Line Broadening, and Fundamental Constants.

ECSED has been developing an XML (eXtensible Markup Language) schema for encoding measurement units in XML. Adoption of this schema will allow for the unambiguous storage, exchange, and processing of numerical data. This project, http://unitsml.nist.gov, has three components:

- UnitsML - an XML schema

- UnitsDB - a database containing detailed information on scientific units of measure

- Tools - to facilitate the incorporation of UnitsML into other markup languages

An OASIS Technical Committee has been initiated to address any needed changes in the schema and to publish a final recommendation.