

The Virtual Observatory: its goals and the relevance of atomic and molecular data

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Domain : Astrophysics, Atomic and Molecular Databases

“The International Virtual Observatory Alliance” [1] promotes the “*development of tools, protocols and collaborations necessary to realize the full scientific potential of astronomical databases in the coming decade*”. The alliance consists of representatives from all funded international Virtual Observatory projects who meet on a regular basis to refine the roadmap and reach consensus on choices for the “common ground issues”. These issues concern standardisation of astronomical data exchanges (format of data, query languages), as well as the ability to locate and make use of any resource located anywhere in the IVOA space. Databases in Atomic and Molecular Physics are part of these efforts because their data are essential both for the interpretation of astrophysical spectra provided by ground or space-based telescopes and for the modeling of various astrophysical media.

We report here our latest developments concerning access to Atomic and Molecular Linelists Databases within the Virtual Observatories, addressing the definition of standards through a proposed Data Model [2], an access protocol to linelists [3], and their implementation on customized spectroscopic data from the CDMS [4]/JPL [5] databases. We will present how these new standards allow interoperability between the CDMS/JPL and the BASECOL [6] databases, and between these databases and both a numerical code (PDR code [7] from Meudon) and a spectral analysis software (DALIA) [8].

[1] <http://www.ivoa.net>

[2] M.L. Dubernet, P. Osuna, M. Guainazzi, E. Roueff, J. Salgado, IVOA, **Version 0.5, January 2006**, “Atomic and Molecular Lines Data Model”

[3] J. Salgado, P. Osuna, M. Guainazzi, M.L. Dubernet, IVOA, **Version 0.2, August 2005**, “Simple Line Access Protocol”.

[4] <http://www.ph1.uni-koeln.de/vorhersagen/>

[5] <http://spec.jpl.nasa.gov/>

[6] <http://www.obspm.fr/basecol>

[7] <http://aristote.obspm.fr/MIS/>

[8] <http://lerma40.obspm.fr/dalia/>