

Data evaluation for the DREAM and DESIRE databases with emphasis on the tungsten case**E. Biémont^{a,b†}, P. Palmeri^{b‡} and P. Quinet^{a,b#}**^a IPNAS, Bât. B15, University of Liège, Sart Tilman B-4000 Liège, Belgium^b ASPECT, Université de Mons-UMONS, Place du Parc, 20, B-7000 Mons, Belgium*E-mail address of main author: E.Biemont@ulg.ac.be*

The database DREAM (**D**atabase on **R**are **E**arths **A**t **M**ons University) contains presently radiative parameters (wavelengths, levels, transition probabilities, Landé factors) for over 64 000 transitions of the lanthanide and some actinide ions and is continuously updated. The different tables, which cover not only the UV region, but also the visible and near infrared spectral ranges are located, with the relevant references, on the web page: <http://www.umons.ac.be/astro/dream.shtml>. This database has been supplemented by the database DESIRE (**D**atabas**E** for the **S**ixth **R**ow **E**lements) which is also focussing on heavy elements and ions (six row of the periodic table: see the address <http://www.umons.ac.be/astro/desire.shtml> for the data and for the relevant references). This database contains also information in the same format for over 15000 transitions.

All the data stored, corresponding to a systematic investigation of the radiative properties of the heavy elements and ions of interest for astrophysics and fusion research, have been obtained using a combination of experimental radiative lifetimes measured with the time-resolved laser-induced fluorescence (LIF) technique (over 700 lifetimes have been obtained) and of theoretical branching fractions (BF) calculated with a relativistic Hartree-Fock (HFR) approach or a multiconfigurational Dirac-Fock (MCDF) technique taking configuration interaction and core-polarization effects into account. This extensive work and the numerous subsequent comparisons have provided us with a broad experience concerning the evaluation of radiative parameters. On that basis, we have been able to deduce some criteria regarding the accuracy evaluation of these atomic data both on the theoretical and on the experimental sides. Numerous samples of the comparisons and of the data evaluations will be shown at the meeting. They will concern some specific ions belonging to these three groups of heavy elements particularly those regarding the tungsten ions in low ionization stages (W I up to W VI).

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