

## COMMISSION 14

## ATOMIC AND MOLECULAR DATA (*ATOMIC AND MOLECULAR DATA*)

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Glenn M. Wahlgren

### VICE-PRESIDENT

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Peter Beiersdorfer, Milan Dimitrijevic,  
Alain Jorissen, Lyudmila I. Mashonkina,  
Hampus Nilsson, Farid Salama,  
Jonathan Tennyson

## PROCEEDINGS BUSINESS SESSIONS, 7 August 2009

**Present:** P. Bonifacio, E. Biémont, S. Federman, H. Hartman, W. F. Huebner, S. Hubrig, J. Kubat, L. Mashonkina, G. Nave, O. Pintado, N. Piskunov, T. Ryabchikova, G. M. Wahlgren (Chair), G. del Zanna

The meeting was called to order by the Chair, who followed the agenda that had been sent to the membership prior to the meeting. The membership of the Commission stands at approximately 200 members. An exact number will not be available until after learning from the Secretariat on the status of new members. The Chair noted that after the current triennium most of the Organizing Committee (OC) will need to be replaced and that we should not wait until the months before the GA to gauge interest for these positions from the membership. Lively discussions ensued related to the Commission's website, which will be changing to fit a proposed IAU format. The website will become a more enhanced resource for locating web sites for atomic and molecular data. The Chair reported on the extensive participation of the Commission in co-sponsoring meetings at the current GA. Finally, the Chair brought to discussion the desire to implement an evaluation of the Commission's activities with the purpose of determining its future goals and how to achieve them.

**Officers:** In our commission the Vice President (VP) becomes the President, and a new VP is chosen from among members of the Organizing Committee. The Chair thanked the outgoing President Steven Federman for his service to the commission and to the promotion of laboratory astrophysics. The Chair announced that the new officers are those listed above.

**Organizing Committee:** Our commission's usual practice is for a member of the Organizing Committee (OC) to serve for two consecutive three year terms, with the past President serving on the OC for three years past their term as President. Officers may serve longer than six years if necessary to complete their service as officers. For the new triennium the entire OC was retained, since they had served for only one term after the reduction in the number of OC members that occurred during the previous triennial period. To keep continuity in the future, the results for a search for two new OC members (Peter Beiersdorfer and Hampus Nilsson) was announced. The Chair remarked with regret on the passing of Sveneric Johansson, who was serving in the position of past President at the time of his passing, and noted his long and valuable service to the astrophysics community. The Chair announced the promotion of Ewine F. van Dishoeck to the position of VP and the new OC as listed above. These changes were ratified by those in attendance.

**Working Groups:** The Commission's Working Group (WG) structure will be retained for the next triennium and is composed of the WGs Atomic Data, Molecular Data, Collision Processes,

and Solids and Their Surfaces. An expanded set of chairpersons for these WGs is being finalized.

**Meetings of Interest:** The Commission acts to bring together providers and users of atomic and molecular data and to disseminate data. To these goals, a number of meetings serve as forums for these discussions. Meetings of interest to members of the Commission will be posted on its website.

Federman reported on the work of the recently formed working group on Laboratory Astrophysics of the American Astronomical Society. Other continuing forums include the NASA-sponsored Workshop on Laboratory Astrophysics, the yearly EGAS conference, along with ICAMDATA, and DAMOP of the American Physical Society. The most recent ASOS meeting occurred in 2007 in Lund, Sweden, and the next in the series is scheduled to take place in Berkeley, CA, USA in 2010. It became clear from the meeting attendees that there are a number of regional and international meetings addressing aspects of laboratory astrophysics that provide opportunities for the exchange of ideas and information among data providers and users.

**General Assembly Commission 14 Science Meeting:** In an effort to bring together providers and users of atomic and molecular data, the commission sponsored a science session immediately following the business meeting. Willing participants were each given a few minutes to present the work performed at their facility in providing fundamental atomic and molecular data or to present a science case for needed data.

Among the facilities providing data, presentations were made by E. Biémont (MONS; atomic lifetime measurements at the Lund Laser Centre, the creation of the DREAM and DESIRE atomic line databases for heavy elements, relativistic calculations), S. Federman (Univ. Toledo; beam-foil atomic lifetimes at ultraviolet wavelengths, synchrotron measurements of molecules), H. Hartman (Lund Univ.; atomic lifetime measurements in the 1 ns to 1  $\mu$ s range, forbidden line transition probabilities, planning for VUV absorption line measurements), G. Nave (NIST; Fourier transform spectroscopy, spectroscopy using EBIT, databases of atomic data), and G. del Zanna (Univ. Cambridge; calculation of atomic data through the Iron Project, CHIANTI, and VAMDC. VAMDC (Virtual Atomic and Molecular Data Centre, [www.vamdc.eu](http://www.vamdc.eu)) is a recently formed EU-funded international project to provide the infrastructure and system integration of atomic and molecular data uses in astrophysics, atmospheric physics, fusion, environmental sciences and industrial applications. G. M. Wahlgren (CUA/NASA-GSFC) mentioned his collaborative efforts with Lund Observatory and NIST to provide hyperfine structure constants for elements where line structure affects abundance analyses.

Data users presented needs that go beyond transition wavelengths and oscillator strengths. L. Mashonkina discussed data needs for non-LTE spectrum modeling, including radiative rate coefficients and photo-ionization cross sections and collision rates for electron impact excitation and ionization. For the latter, no such data are available for the rare earth elements and one must rely on a hydrogenic approximation. P. Bonifacio stressed the need for atomic line broadening parameters. W. F. Huebner discussed comet chemistry analysis, in particular for hydrocarbons and the data needs for studies of dissociation and ionization processes.

Glenn M. Wahlgren and Ewine F. van Dishoeck  
*President of the Commission and Vice-President 2009-2012, respectively*