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Preface

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PREFACE

The VI th Conference on Atomic and Molecular Data for Astrophysics was organized by the Eurasian Astronomical Society, and the Physics and Astronomical Institutes of St. Petersburg University. The conference was held at the Astronomical Institute of St. Petersburg University from April 20th to April 21st, 1995. About 25 participants from the Astronomical and Physics Institutes of Kazan, Latvia, Moscow and St. Petersburg participated in the meeting.

The program of the conference included 17 review talks and individual contributions concerning the following:

- level energies and transition wavelengths;
- oscillator strengths and transition probabilities for atomic and molecular transitions;
- photoionization and excitation of atoms and ions by electron impact;
- atomic data catalogs and data bases.

The first session (April 20th) was dedicated to experimental and theoretical investigations of atomic and molecular level energies and transition probabilities. S. A. Astashkevich and B. P. Lavrov reported the results of their determinations of the radiative lifetimes for the electron-rovibrational levels in the triplet $3s, 3d$ complex of H_2 . The perturbations in the singlet $3d$ complex of the electron terms of H_2 were considered by S. A. Astashkevich, N. V. Kokina and B. P. Lavrov. A review of the recent results in the field of the complex investigation of Sm I spectra was presented by V. A. Komarovskii and Yu. M. Smirnov. V. M. Shabaev, M. B. Shabaeva and I. I. Tupitsin talked about the results of precision calculations of fine-structure level splitting for H-like and Li-like ions. Calculations of the relative line strengths of the He triplet lines in strong magnetic fields were demonstrated by G. P. Anisimova, R. I. Semenova and V. I. Tuchkin.

The evening session was devoted to photon and electron collisions. A review talk on the autoionization resonances in atomic spectra was given by M. G. Kozlov. Yu. M. Smirnov presented the results of measurements of electron-impact excitation cross-sections for numerous transitions of atoms of Fe, Pd and Pt groups. The results of determinations of the excitation cross-sections for collisions of H I in the ground ($n = 1$) state with Ar, Kr and H_2 were reported by B. P. Lavrov and A. S. Melnikov.

The problems of plasma kinetics and the astrophysical applications of atomic spectroscopy were considered at the third and fourth sessions (April 21st). The second conference day was opened with a report by A. A. Nikitin and A. F. Kholtygin on the recent discovery of heavy element (Kr, Xe, Br, Rb and Ba) lines in the spectra of planetary nebulae. A program of spectroscopic investigations needed to analyze these lines was proposed. A. A. Mityureva and V. V. Smirnov presented the approximation formulas for He I excitation cross-sections due to electron impact with terms $2^1 S$ and $2^3 S$.

N. G. Bochkarev reported on scientific societies and groups in Russia considering that their activities represent the best chance to improve the scientific situation in Russia. He devoted special attention to the work of the Astronomical Society.

Laboratory modelling of the collision processes in the solar photosphere was considered in the talk by Yu. A. Pyotrovskij and Y. A. Tolmachev. V. F. Bratsev and V. I. Ochkur presented the results of their calculations of nitrogen ion excitation cross-sections due to electron impact.

The last session was dedicated to atomic catalogs and data bases. Information on the preparation of a new atomic data catalog of astrophysically important atomic data was presented in a report by V. V. Golovatij, A. Sapar, T. Feklistova and A. F. Kholtygin. The structure of the catalog and the access procedure for receiving electronic copies of the catalog were described. A. F. Kholtygin also reported on the TOPbase atomic data base of the international project *Opacity*. A practical demonstration of the work with TOPbase was given.

The conference ended with the joint discussion. The decision to organize the next Conference on Atomic and Molecular Data for Astrophysics in 1997 was accepted.

The book of abstracts of the conference is available (in Russian) from A. F. Kholtygin via email: afk@aispbu.spb.su. This address is also suitable for sending requests to participate in the next conference and for additional information.

A. F. Kholtygin
Chairman of the Local Organizing Committee