

REGIONAL WORKSHOP ON ATOMIC AND MOLECULAR DATA

Belgrade, Serbia, June 14-16, 2012

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VAMDC
Virtual Atomic and Molecular Data Centre

SCIENTIFIC RATIONALE

Atomic and molecular data play an essential role in astrophysics, fusion, laboratory and industrial plasmas, lighting sciences and technologies, biomedicine and biophysics, combustion and environmental sciences as well underpinning many technologies, surface physics, optics and spectroscopy optoelectronics, etc.

In this meeting the need for and applications of such data in these fields will be reviewed, as well as discussion and presentation of some of the databases and data centres that collate and disseminate such data.

The objective is both to show the state of the art in this field and provide information on the need for atomic and molecular data and the current status of atomic and molecular databases. It is targets both at data producers and users and will be of interest to all scientists involved in fundamental research and/or technological applications.

A key part of the meeting will be the presentation of the Virtual Atomic and Molecular Data Centre (VAMDC), an EU funded collaboration between groups involved in the generation, evaluation, and use of atomic and molecular data.

VAMDC is building a reliable, open, flexible and interoperable e-science interface to existing atomic and molecular data. During the workshop there will be a VAMDC tutorial in order to explain and demonstrate to participants how to use services of VAMDC.

The meeting is particularly targeted at researchers based in the Balkans and south eastern Europe and some support for such researchers will be available.

Organized by Serbian Society of Astronomers
and Group for Astrophysical Spectroscopy, Astronomical Observatory, Belgrade

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REGISTRATION

The dead line for registration of the participants is April 15, 2012. In order to register please fill in registration form ([DOWNLOAD](#)). The conference fees are 150 Eur. The reduced registration fees (payed until April 15, 2012) are 100 Euros.

ABSTRACTS

The **BOOK OF ABSTRACTS** will be published before the Workshop. The template for abstracts (one page per abstract) is given here ([DOWNLOAD](#)). The deadline for sending an abstract is April 15, 2012.

FINANCIAL SUPPORT

The Organizing Committees will try to find sources for financial support of a limited number of participants (mainly PhD and MSc students). The participants who are interested in financial support should send their request to the LOC until March 31, 2012 (see the registration form).

IMPORTANT DATES

Registration: April 15, 2012

Deadline for reduced-registration fees: April 15, 2012

Abstracts (one page): April 15, 2012

Second Announcement: May 1, 2012

Send your application to (please put in a subject: VAMDC-Workshop)

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LOCATION:

Faculty of Mechanical Engineering,
University of Belgrade

ROOM:

513

FLOOR:

5

ADDRESS:

16 Kraljice Marije, Belgrade. See the map.

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PROGRAM

REGIONAL WORKSHOP ON ATOMIC AND MOLECULAR DATA (WITH VIRTUAL ATOMIC AND MOLECULAR DATA CENTER INTRODUCTION),

Belgrade 14-16. June 2012

VENUE: Faculty of Mechanical Engineering, University of Belgrade, ROOM: 513, FLOOR: 5,
ADDRESS: 16 Kraljice Marije, Belgrad

<http://poincare.matf.bg.ac.rs/~andjelka/VAMDC/>

14. June 2012, Thursday

9:30-10:00 Opening

Chairman: Milan S. Dimitrijević

10:00-10:45 Nigel Mason: ON THE APPLICATION OF ATOMIC AND MOLECULAR DATA

10:45-11:30 Iztok Čadež: DISSOCIATIVE ELECTRON ATTACHMENT IN MOLECULES – NEEDS AND CURRENT STATUS OF AVAILABLE DATA

11:30-12:00 **Coffee Break**

Chairman: Nigel Mason

12:00-12:45 Milan S. Dimitrijević: STARK BROADENING DATA – NEEDS AND APPLICATIONS

12:45-13:30 Darko Jevremović: ATOMIC AND MOLECULAR DATA FOR STELLAR ATMOSPHERES MODELLING – EXAMPLE OF PHOENIX CODE

13:30-15:00 **Lunch Break**

Chairman: Zoran Petrović

15:00-15:45 Dejan Vinković: CHALLENGES OF HIGH RESOLUTION RADIATIVE TRANSFER IN DUST SUBLIMATION ZONE

15:45-16:15 Jelena Kovačević: ATOMIC AND MOLECULAR DATA FOR ACTIVE GALACTIC NUCLEI – Fe II LINES

16:15-17:15 **Coffee Break**

Chairman: Friedrich Kupka

17:15-18:00 Kiril Blagoev: RADIATIVE PARAMETERS OF ATOMIC AND IONIC STATES

18:00-18:30 Zoran Simić, Milan S. Dimitrijević: ATOMIC DATA AND ELECTRON-IMPACT BROADENING OF SPECTRAL LINES OF RARE EARTHS

15. June 2012, Friday

Chairman: Bratislav Marinković

10:00-10:45 Sylvie Sahal-Bréchet: THE STARK-B DATABASE FOR SPECTRAL LINE BROADENING BY COLLISIONS WITH CHARGED PARTICLES

10:45-11:30 Alexander Yakubovich: DEVELOPMENT OF THE RADAM DATABASE

11:30-12:00 **Coffee Break**

Chairman: Sylvie Sahal-Bréchet

12:00-12:45 Zoran Petrović, O. Šašić, J. Jovanović, S. Dujko, V. Stojanović, A. Banković, D Marić, G. Malović: DATA BASES FOR COLLISIONS AND TRANSPORT OF ELECTRONS AND POSITRONS IN IONIZED GASES I

12:45-13:30 Zoran Petrović, O. Šašić, J. Jovanović, S. Dujko, V. Stojanović, A. Banković, D Marić, G. Malović: DATA BASES FOR COLLISIONS AND TRANSPORT OF ELECTRONS AND POSITRONS IN IONIZED GASES II

13:30-15:00 **Lunch Break**

Chairman: Alexander V. Yakubovich

15:00-15:45 Bratislav P. Marinković, D. Janković, I. Maksimović, D. B. Marinković, S. Djordjević, M. Nešić, D. Radosavljević, S. Čonjagić, A. V. Yakubovich, M. Hanauske, A. V. Solov'yov: ELECTRON INTERACTIONS DATA BASE AS A STEP TOWARDS A DATA BASE FOR RADIATION DAMAGE IN BIOMOLECULAR SYSTEMS I

15:45-16:30 D. Janković, I. Maksimović, D. B. Marinković, S. Djordjević, M. Nešić, D. Radosavljević, S. Čonjagić, Bratislav P. Marinković: ELECTRON INTERACTIONS DATA BASE AS A STEP TOWARDS A DATA BASE FOR RADIATION DAMAGE IN BIOMOLECULAR SYSTEMS II

16:30-17:00 **Coffee Break**

Chairman: Kiril Blagoev

17:00-17:30 Friedrich Kupka: VALD Database

17:30-17:45 Vladimir Srećković, Desanka Šulić, Aleksandra Nina, Anatolij A. Mihajlov, Ljubinko Ignjatović: VLF DATA ACQUISITION AND CENTRAL DATABASE STORING

17:45-18:00 Aleksandra Nina: IMPORTANCE OF A DATABASE 18:30-18:45

18:00-18:15 Aleksandra Dobradžić, Andjelka Kovačević: ATOMIC AND MOLECULAR DATA – APPLICATION ON FORMATION OF MOLECULES IN DARK CLOUDS CONTAINING DATA REGISTERED BY VLF RECEIVER SYSTEM

16. June 2012, Saturday

VAMDC INTRODUCTION

10:00-10:45 Friedrich Kupka: OVERVIEW ON THE VAMDC PROJECT

10:45-11:30 Nigel Mason: VIRTUAL ATOMIC AND MOLECULAR DATA CENTER - VAMDC I

11:30-12:00 **Coffee Break**

12:00-13:00 Nigel Mason: VIRTUAL ATOMIC AND MOLECULAR DATA
CENTER - VAMDC II

13:00 **Closing**

ELECTRON INTERACTIONS DATA BASE AS A STEP TOWARDS A DATA BASE FOR RADIATION DAMAGE IN BIOMOLECULAR SYSTEMS

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The study of radiation damage processes in biomolecular systems has been in focus of the European network organization COST (Co-operation in Science and Technology) since the adoption of COST Action P9 that started in 2003 and has been succeeded by COST Action MP1002 entitled "Nano-scale insights in ion beam cancer therapy (Nano-IBCT)". Recently it has been decided to create an comprehensive data base for radiation damage that would comprise both experimental and theoretical data relevant to the several topical areas of radiation damage processes. These include five areas: TA1 Ionic interactions, TA2 Electron/positron interactions, TA3 Photonic Interactions, TA4 Multiscale RADAM phenomena and TA5 Radiobiological scale effects. The planned data base, RADAM DB, will exploit the underlying infrastructure of VAMDC, Virtual Atomic Molecular Data Centre, with its applications capable of combining, extracting and processing data from all VAMDC member data bases. Data base for electron/positron interactions with biomolecules will collect data of cross sections (elastic, excitation, ionization, positronium formation, resonances), molecular fragmentation processes (dissociative electron attachment, relative fragmentation yields and mechanisms, DNA strand breaks) secondary particle production (yields of excited or ionized particle energy spectra, radicals productions, annihilation), energy transfer and doses (linear energy transfers, nanodosimetry, electron excitation exchanges, alignment and orientation parameters), swarm and transport processes (effective parameters, integral and momentum transfer cross sections, transport code results). Data will be structured according VAMDC standard documentation and XSAMS reference guide.

Acknowledgement

This work has been partially supported by the Ministry of Education and Science of Republic of Serbia (Project 171020) and the bilateral project between Serbia and Germany (DAAD #54394840). It has been motivated by research within COST Action MP1002 Nano-IBCT and FP7 VAMDC project.