

XIV Serbian Conference on Spectral Line Shapes in Astrophysics

June 19 - 23, 2023 Bajina Bašta, Serbia

BOOK OF ABSTRACTS

Eds. Luka Č. Popović, Nataša Bon, Edi Bon
and Sylvie Sahal-Bréchet



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XIV Serbian Conference on Spectral Line Shapes in Astrophysics

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INVITED LECTURES

COLLISIONAL DATABASES WITHIN VAMDC: SYNERGY WITH RADAM and Nano-IBCT COST ACTIONS

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Although the idea of creating a collisional database that would cover cross section data for electron interactions with atomic and molecular targets existed for a long time at the Institute of Physics Belgrade, only after beginning of the COST Action P9 RADAM (acronym for Radiation Damage), *Radiation Damage in Biomolecular Systems*, it started to materialize. One of the important goals of RADAM that lasted four years, from 2003 till 2007, was to produce set of comprehensive databases which would cover different aspects of radiation damage. This idea was further developed within successor COST Action MP1002, *Nano-scale insights in ion beam cancer therapy (Nano-IBCT)*, when five distinctive areas of data collections (interactions of ions, electrons/positrons, photons, multiscale RADAM phenomena and radiobiological phenomena) were gathered into one RADAMDB portal. All those databases had been created using the Virtual Atomic and Molecular Data Center (VAMDC) standards. Adopting these standards and sharing the same idea of distributed nodes of individual databases both consortia, VAMDC and RADAMDB, became decisive provider of atomic and molecular data, relevant for many other fields of science and technology (astrophysics, plasma, lasers, lighting, radiation treatment). Presently there are 39 active nodes within VAMDC that comprise large national and international facilities dedicated to

provide accurate data (AMBDAS database, Cologne Database for Molecular Spectroscopy - CDMS, Harvard-Smithsonian Center for Astrophysics with HITRAN database, Atomic Spectra Database, Japan National Institute for Fusion Science – NIFS with its Atomic and Molecular Research Center, as well as databases from large international projects like Opacity or Iron project). Institute of Physics Belgrade became an important pillar of VAMDC holding at present two nodes: BEAMDB - Belgrade electron/atom(molecule) database and Photodissociation - MolD database with the prospect to add two more nodes, Collisional Atomic Processes (Excitation-Ionization) - ACol database and database with Judd-Ofelt parameters.

14th Serbian Conference on Spectral Line Shapes in Astrophysics

Bajina Basta, Serbia, June 19 - 23, 2023

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[Previous 13th SCSLSA](#)
(Belgrade, 23-27 August, 2021)



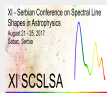
Selected papers which have been presented at 13th SCSLSA are published in the special issue "Spectral line shapes in astrophysics" of journal *Astronomische Nachrichten* in January 2022, Volume 343, Number 1 [Abstracts, Presentation and Photos](#)

[Previous 12th SCSLSA](#)
(Vrdnik, 3 - 7 June, 2019)



Selected papers which have been presented at 12th SCSLSA are published in the special issue "Spectral line shapes in astrophysics and related topics" of journal *Contributions of the Astronomical Observatory Skalnaté Pleso (CAOSP)* in January 2020, Volume 50, Number 1 [CAOSP Abstracts, Presentation and Photos](#)

[Previous 11th SCSLSA](#)
(Sabac, 21 - 25 August, 2017)



Selected papers which have been presented at 11th SCSLSA are published in the special issue *Atoms* [Abstracts, Presentation](#)

Programme of 14th SCSLSA

Venue: Zepter Hotel Drina, Bajina Basta, Serbia

The time zone is CEST

Monday, June 19, 2023

- 16:00 - *Arrival*
- 16:00 - 17:00 *Registration*
- 17:00 - 17:30 *Opening ceremony (Natasa Bon, Luka C. Popovic & Sylvie Sahal Brechot)*

DATABASES AND SPECTRAL LINE SHAPES FROM LABORATORY TO SPACE PLASMA

Chair: **S. Sahal-Brechot**

- 17:30 - 18:00 **Bratislav Marinkovic, Serbia** Collisional databases within VAMDC: Synergy with COST Action RADAM
- 18:00 - 18:30 **Yuri Ralchenko, USA** NIST Atomic Databases: data evaluation, uncertainties, online tools
- 18:30 - 21:30 *Welcome reception*

Tuesday, June 20, 2023

SPECTRAL LINE SHAPES AND ASTROPHYSICAL PHENOMENA



Virtual Atomic and Molecular
Data Centre - VAMDC



Laboratory for Atomic
Collision Processes

COLLISIONAL DATABASES WITHIN VAMDC: SYNERGY WITH RADAM and Nano-IBCT COST ACTIONS Belgrade Electron-Atom/Molecule DataBase – BEAMDB



Bratislav Marinković, Stefan Ivanović, Nebojša Uskoković and Dragutin Šević
Institute of Physics Belgrade

14th SCSLSA, Bajna Bašta, 19.06.2023