

BIBLIOGRAPHY (1966–2019)
OF ACAD. RATKO K. JANEV

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LIST OF PUBLICATIONS

Summary:

- A) Monographs, edited books/journal volumes, compendia: 15
- B) Chapters in books: 13
- C) Review articles, invited papers: 27
- D) Articles in refereed journals: 320
- E) Invited talks at international conferences: 42

Detailed list of publications

A. Monographs, Edited Books, Compendia

(i) Monographs

1. R.K. Janev
Atomic Physics, Vols. 1 and 2
University Press, Skopje (1972) (in Macedonian)
2. R.K. Janev, L.P. Presnyakov, V.P. Shevelko
Physics of Highly Charged Ions.
Springer-Verlag, Berlin-Heidelberg (1985)
3. L.P. Presnyakov, V.P. Shevelko, R.K. Janev
Elementary Processes Involving Multiply Charged Ions.
Energoatom Izdat, Moscow (1986), (in Russian)
4. R.K. Janev, W.D. Langer, K. Evans, D.E. Post Elementary Processes in
Hydrogen-Helium Plasmas. Springer-Verlag, Berlin-Heidelberg (1987)
5. V.I. Lend'el, V.Yu. Lazur, M.L. Karbovanets, R.K. Janev
Introduction to the Theory of Atomic Collisions.
Vysshaya shkola, L'vov (1989), (in Russian)
6. R.K. Janev
Controlled Thermonuclear Fusion.
Institute of Physics, Belgrade (1989) (in Serbo-Croatian)
7. R.K. Janev, Lj. Petkovski
Atomic Physics.
Macedonian Academy of Sciences and Arts, Skopje (2012) (in Macedonian).

(ii) Edited Books

8. R.K. Janev (ed)
Physics of Ionized Gases.
(Invited Lectures and Progress Reports of SPIG'78)
Nauka i društvo, Beograd (1978)
9. R.K. Janev, H.W. Drawin (eds.) Atomic and Plasma-Material Interaction
Processes in Controlled Thermonuclear Fusion.
Elsevier Publ. Co., Amsterdam (1993)
10. R.K. Janev (ed.) Atomic and Molecular Processes in Fusion Edge Plasmas.
Plenum Publ. Corp., New York (1995)

(iii) Guest Editor for international journal volumes

11. Physica Scripta, Topical issue, vol. T 37 (1991):
"Collision Processes of Metallic Ions in Fusion Plasmas"
12. Physica Scripta, Topical issue, vol. T 62 (1996):
"Collision Processes of Be and B Atoms and Ions in Fusion Plasmas"
13. Physica Scripta, Topical issue, vol. T 96 (2002):
"Atomic and Molecular Processes in Divertor Plasma
Volume Recombination" (with D.R. Schultz as co-editor)

(iv) Compendia

14. R.A. Phaneuf, R.K. Janev, M.S. Pindzola
Atomic Data for Fusion, Vol. 5: Collisions of Carbon and Oxygen Ions with
Electrons, H, H₂ and He
Oak Ridge National Laboratory, ORNL-6090, Oak Ridge, Tennessee (1987)
15. R.K. Janev, J.J. Smith
Cross Sections for Collision Processes of Hydrogen Atoms with Electrons,
Protons and Multiply Charged Ions.
At. Plasma-Mat. Inter. Data Fusion, vol. 4, IAEA, Vienna (1993). R.K. Janev, D.E.

B. Chapters in Books

1. R.K. Janev, D.E. Post
Atomic physics aspects of particle transport in fusion plasmas.
In: "Physics of Ionized Gases", Ed. M.M. Popovic (World Sci. Publ. Co., Singapore, 1985) p. 201
2. R.K. Janev Theory of charge exchange and ionization in ion-atom (ion) collisions.
In: "Atomic Processes in Electron-Ion and Ion-Ion Collisions",
Ed. F. Brouillard, (Plenum Press, New York, 1986) p. 239
3. R.K. Janev, P.S. Krstic
Dynamical processes involving quasi-stationary states.
In: "Spectroscopy and Collisions of Few-Electron Ions"
Eds. V. Zoran et al., (World Scientific Inc., Singapore, 1989) p. 317
4. R.K. Janev
Atomic processes in thermonuclear fusion plasmas.
in: "Review of Fundamental Processes and Applications of Atoms and Ions",
Ed. C.D. Lin (World Scientific Publ. Co., Singapore, 1993) p. 1
5. R.K. Janev
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Eds. R.K. Janev and H.W. Drawin (Elsevier, Amsterdam, 1993) p. 27
6. R.A. Phaneuf, R.K. Janev
Establishment and status of atomic and molecular collision databases for fusion plasma applications.
In: "Atomic and Plasma-Material Interaction Processes in Controlled Thermonuclear Fusion",
Eds. R.K. Janev and H.W. Drawin (Elsevier, Amsterdam, 1993) p. 371
7. R.K. Janev
Basic properties of fusion edge plasmas and role of atomic and molecular processes.
In: "Atomic and Molecular Processes in Magnetic Fusion Edge Plasmas",
Ed. R.K. Janev (Plenum Press, New York, 1995) p. 1
8. R.K. Janev, H.P. Winter, W. Fritsch
Electron transfer processes in slow collisions of H, He and H₂ with plasma impurity ions. In: "Atomic and Molecular Processes in Magnetic Fusion Edge Plasmas",
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9. F. Linder, R.K. Janev, J. Botero
Reactive ion-molecule collisions involving hydrogen and helium.
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10. R.K. Janev
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In: "Atomic Physics with Heavy Ions",
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11. R.K. Janev
Collision processes of atomic and molecular hydrogen in fusion plasmas.
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13. R. Celiberto, R.K. Janev, V. Laporta ... [et. al.]
Electron-molecule processes.
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Eds. G. Colonna, M. Capitelli, A. Laricchiuta (IOP Publishing, Bristol, UK, 2019)
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C. Review Articles, Invited Papers

1. R.K. Janev
Modern methods in the theory of heavy particle collisions.
In: "Physics of Ionized Gases", (Inv. Lectures of IV Yugoslav
Symp. Phys. Ioniz. Gases) Ed. B. Perovic, Beograd, 1969, p.133
2. R.K. Janev
Non-adiabatic transitions between ionic and covalent states.
In: Adv. Atom. Mol. Phys. 12, 1 (1976)
3. R.K. Janev
Atomic and molecular processes involving ionic-covalent nonadiabatic coupling.
In: "Physics of Ionized Gases", (Inv. lectures and progress reports of SPIG-78),
Ed. R.K. Janev, Beograd, 1978, p. 171
4. R.K. Janev, T.P. Grozdanov
Charge-exchange processes in atom-multicharged ion collisions.
In: "Physics of Ionized Gases", (Inv. lectures and progress reports of SPIG-80),
Ed. M. Matic, Beograd, 1981, p. 351
5. R.K. Janev, L.P. Presnyakov
Collision processes of multiply charged ions with atoms.
Phys. Rep. 70, 1 (1981)
6. B.H. Bransden, R.K. Janev
Electron capture in collisions of hydrogen atoms with fully stripped ions.
In: Adv. At. Mol. Phys. 19, 1 (1983)

7. R.K. Janev
Excited states created in charge transfer collisions between atoms and highly charged ions.
In: *Physica Scripta* 13, 208 (1983)
8. R.K. Janev
An overview on collision processes of highly charged ions with atoms: Present status and problems.
In: "Atomic Collision Processes with Multiply Charged Ions", Ed. B. Perovic (B. Kidrich Inst. of Nucl. Sciences, Belgrade, 1983), p. 37
9. L.P. Presnyakov, R.K. Janev
Excitation and ionization processes in electron-multiply charged ion collisions.
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10. R.K. Janev, H. Winter
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In: *Phys. Rep.* 117, 265 (1985)
11. M.I. Chibisov, R.K. Janev
Asymptotic theory of exchange interactions in ion-atom systems.
In: *Phys. Rep.* 166, 1 (1988)
12. R.K. Janev
Atomic collisions in fusion plasmas.
In: *J. de Physique (Paris) Coll. C1*, T. 50, C1-421 (1989)
13. R.K. Janev
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In: *Invited lectures of XIX ICPIG (University of Belgrade, 1989)* p. 264
14. R.K. Janev
Atomic and molecular processes in fusion plasmas.
In: *Proc. Int. Symp. on Atomic and Molecular processes in Fusion Plasmas*; Ed. H. Tawara, NIFS-DATA-Series 39, 3 (1996)
15. R.K. Janev
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16. R.K. Janev, E.A. Solov'ev
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In: *Physics of Electronic and Atomic Collisions (Inv. lectures and progr. reports of XX Int. Conf. Physics of Electronic and Atomic Collisions)*, Eds. F. Aumayr, HP. Winter (World Scientific, Singapore, 1998) p. 393.
17. R.K. Janev
Atomic and molecular processes in SOL / divertor plasmas.
In: *Contrib. Plasma Physics* 38, 307 (1998)

18. R.K. Janev, K.H. Becker, R.E.H. Clark, G. Lister, K. Niemax
International coordination of atomic and molecular data efforts.
In: Internat. Conf. on Atomic and Molecular Data and their Applications,
Eds. P.J. Mohr and W.L. Wiese (AIP, 434, 1998) p. 391.
19. R.K. Janev
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in fusion edge plasmas.
In: Dissociative Recombination IV: Theory, Experiment, Applications,
Eds.:M.Larson et al., (World Scientific, Singapore, 2000) p. 245.
20. R.K. Janev
Molecular processes in fusion edge plasmas.
In: Proc. Int. Seminar At. Processes in Plasmas,
Ed. T. Kato, NIFS-PROC-44 (1999) p. 57.
21. R.K.Janev
Electron-molecule collisions in fusion divertor plasmas.
In: Proc. Internat. Symp. Electr.-Mol.Collisions and Swarms,
Eds. I. Fabrikant et al., (Univ.Nebraska, Lincoln,2001), p.49.
22. R.Celiberto, A.Laricchiuta, R.K.Janev
Cross section data for hydrogen plasma applications.
In: "Atomic and molecular data and their applications".
Eds. D.R.Schultz et al. (AIP Conf. Proceedings Series, Vol. 636, 2002) p. 277
23. R.K.Janev
Atomic and molecular physics issues in current thermonuclear fusion research.
In: Contemporary Physics, 46, 121 (2005)
24. D.Reiter, M.Baeva, O.Marchuk. R.K.Janev
The role of atomic and molecular processes in magnetic fusion plasmas.
In: "Atomic and molecular data and their applications",
Eds. T.Kato et al., (AIP Conference Proceedings Series, Vol. 771, 2006) p.3.
25. L.Ling, Y.Y.Qi, J.G.Wang, R.K.Janev
Debye plasma effects on atomic structure and dynamics.
In: "Atomic and molecular data and their applications",
Eds. S.P. Zhu, J. Yan (AIP Conf. Proc. Series, Vol. 1125, 2008) p.58.
26. R.Celiberto, I.Armenise, M.Cacciatore, M.Capitelli, P.Gamallo, R.K.Janev et al.
Atomic and molecular data for spacecraft re-entry plasmas.
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A review of quantum collision processes in Debye plasmas.
In: Matter and Radiation at Extremes. 1 (5), 237–248 (2016), Available at (URL):
<http://www.sciencedirect.com/science/article/pii/S2468080X16300760> ;
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D. Articles in Refereed Journals

1. I.V. Komarov, R.K. Janev
Molecular term splitting by two-electron exchange.
In: Zh. Eksp. Teor. Fiz. 51, 1712 (1966) (Sov. Phys.-JETP, 24, 1259, 1967)
2. R.K. Janev
Resonant charge exchange in H - H collisions.
In: Ann. (Vestnik) Leningrad State Univ. 22, 61 (1967) (in Russian)
3. R.K. Janev
A model for double nonresonant charge exchange.
In: Zh. Eksp. Teor. Fiz. 52, 1221 (1967) (Sov. Phys. JETP 25, 812, 1967)
4. G.V. Dubrovskii, V.D. Ob'edkov, R.K. Janev
Dissociative electron attachment on molecules and estimation of the width of quasi-stationary states.
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The mobility of doubly charged ions in their parent gases.
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Coupling of direct and exchange scattering in slow ion-atom collisions.
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7. R.K. Janev
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8. R.K. Janev
Phase equation for the Jost function.
In: Phys. Letts. 30A, 233 (1969)
9. D.M. Davidovic, R.K. Janev
Resonant charge-exchange of negative ions in slow collisions with atoms.
In: Phys. Rev. 186, (No. 1), 89 (1969)
10. S.S. Pesic, R.K. Janev, D.M. Davidovic
Transport properties of negative ions in their parent gases.
In: Phys. Rev. 186, 95 (1969)
11. R.K. Janev, V.D. Ob'edkov
Evaluation of the electron affinity of Li by using an integral identity for the energy.
In: Fizika 1, 233 (1969)
12. R.K. Janev, S.S. Pesic
On the behavior of low-energy inelastic cross section for atomic reactions.
In: J. Phys. B: 3, 369 (1970)

13. R.K. Janev, D.M. Davidovic, A.R. Tancic
A simple model for Penning ionization.
In: Fizika 2, 165 (1970)
14. R.K. Janev, V.D. Ob'edkov
Adiabatic representation for the exchange inelastic electron-atom amplitude.
In: Phys. Letts. 31A, 578 (1970)
15. R.K. Janev, Dj. Zivanovic
A model for scattering of a particle on a bound system of particles.
In: Phys. Letts. 33A, 127 (1970)
16. R.K. Janev, A.R. Tancic
Electron detachment in $H^+ - H$ and $O^+ - O$ collisions.
In: J. Phys. B: 4, 219 (1971)
17. R.K. Janev
Atom-excited atom exchange interaction at large distances.
In: J. Phys. B: 4, 215 (1971)
18. D.M. Davidovic, R.K. Janev
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19. R.K. Janev, Dj. Zivanovic
The use of the Green's function method for scattering of a particle on a system of bound particles.
In: Fizika 3, 29 (1971)
20. R.K. Janev, A. Salin
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In: J. Phys. B: 4, 127 (1971)
21. R.K. Janev, D.M. Davidovic, I.V. Terzic
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Faddeev-Lovelace equations in the eikonal approximation.
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23. R.K. Janev, A. Salin
Exchange interaction between ionic and covalent states of two atoms at large distances
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24. M.A. Burnashev, R.K. Janev, V.D. Ob'edkov
Inelastic e-H and e-He collisions in the adiabatic approximation.
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25. R.K. Janev, A. Salin
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E. Invited Talks at International Conferences

1. Modern methods in the theory of heavy particle collisions. IV SPIG, Herceg-Novti, 1968 (published, see C. 1)
2. Inelastic processes in slow collisions of highly excited atoms with ground state atoms. VII All-Union Conf. Electron. Atom. Collisions, Petrozavodsk, USSR, 1978 (unpublished)
3. Atomic and molecular processes involving ionic-covalent nonadiabatic coupling. IX SPIG, Dubrovnik, 1978 (published, see C. 3)
4. Charge exchange in slow ion-atom collisions. Nordic Summer School on Atomic Collision Processes, Sandbjerg Manor, Denmark, August 1980 (unpublished)
5. Charge exchange processes in atom-multicharged ion collisions. X SPIG, Dubrovnik, 1980 (published, see C. 4) (with T.P. Grozdanov)
6. Excited states created in charge transfer collisions between atoms and highly charged ions. Symposium on Production and Physics of Highly Charged Ions, Stockholm, 1982 (published, see C. 8)
7. A critical review of theoretical cross section data for charge exchange in collisions of hydrogen atoms with highly charged ions. IAEA RCM on "Atomic Data for Fusion Plasma Diagnostics", Vienna, 1982 (with B.H. Bransden) (published, C.6)
8. Charge transfer processes in fusion plasmas. RAL/JET workshop on Atomic Physics of Fusion Plasmas, Abingdon, 1984 (unpublished)
9. Atomic physics aspects of particle transport in fusion plasmas. XII SPIG, Sibenik, 1984 (published, see B. 1) (with D.E. Post)
10. Influence of excited states on neutral beam heating on controlled fusion plasma experiments. 8th Conf. Application of Accelerators in Research and Industry, Denton, TX 1984 (unpublished) (with D. Post, C. Boley and R. Wieland)
11. Theory of charge-exchange and ionization in ion-atom (ion) collisions. 2 nd Intern. Symposium on Electron-Ion and Ion-Ion Collisions, Han sur Less, Belguim, 1985); (published, see B. 2)
12. Collision processes involving excited species in fusion edge plasmas. IAEA Specialists' Meeting on Atomic and Molecular Data for Plasma Edge Studies, Vienna, 8-10 July 1987 (unpublished)
13. Atomic and molecular processes in tokamak edge plasmas. IX ESCAMPIG, Lisbon, August 1988 (unpublished; Abstract in: ECA-Series, Vol.12-H,P.36, 1988)
14. Atomic collisions for fusion: A review. IV International conference on the physics of multiply charged ions Grenoble, September 1988 (published, see C. 13)
15. Dynamic processes involving quasi-stationary states. International conference on spectroscopy and collisions of few-electron ions Bucharest, September 1988 (with P.S. Krstic, published, see B. 3)

16. Energetic neutral beam penetration in fusion reactor plasmas. All-Union Seminar on "Toroidal Systems in Controlled Fusion", Dubna, USSR, February 20-24 (1989) (unpublished)
17. Atomic physics database for neutral beam stopping cross sections. ITER Workshop on "Current Drive and Heating Physics", Garching, June 12-16 (1989) (unpublished)
18. Atomic processes in fusion plasmas. XIX Int. Conf. Phenomena Ioniz. Gases, Belgrade, July 10-14, 1989, (published, see C. 14)
19. Atomic and molecular data for controlled thermonuclear fusion. Belgian Physical Society Meeting, Mons, Belgium, May 26-27, 1994, (unpublished)
20. Atomic and molecular processes in fusion plasmas. Int. Symposium on Atomic and Molecular Processes in fusion plasmas. Nagoya, NIFS, Sept. 17-19, 1996, (published; see C.15)
21. Hidden crossings approach to inner-shell ion-atom collision processes. 6th Workshop on Fast Ion-Atom Collisions, Debrecen (Hungary), Sept. 4-6, 1996, (published, see C.16)
22. Application of hidden crossing theory to positron-hydrogen atom collisions. (with E.A. Solov'ev), XX Internat. Conf. Physics of Electronic and Atomic Collisions, Vienna (Austria), July 23-29, 1999, (published, see C. 17)
23. Atomic and molecular processes in SOL / divertor plasmas. 6th Internat. Workshop on Plasma Edge Theory in Fusion Devices, Oxford, UK, September 15-16, 1997, (published, see C. 18)
24. International coordination of atomic and molecular data efforts. 1st ICAMDATA, Gaithersburg, NIST, Sept. 29 - Oct. 2, 1997, (published, see C. 19)
25. Atomic and molecular databases for fusion plasma research. Internat. Workshop on Collisional and Radiative Spectroscopy in Laboratory and Space Research, Moscow, October 12-14, 1998, (unpublished)
26. Role of dissociative recombination and related molecular processes in fusion edge plasmas. 4th Internat. Conf. on Dissociative Recombination, Näslingen, Sweden, June 16-20, 1999, (published, see C. 20).
27. Molecular processes in fusion edge plasmas. Internat. Seminar on Atomic Processes in Plasmas, Toki, Japan, July 29-30, 1999, (published, see C.21)
28. Atomic and molecular processes for MAR: Status and prospects. Internat. Workshop on Molecule Assisted Plasma Recombination (MAR), Nagoya Univ., Nagoya, Japan; November 8, 1999, (unpublished).
29. Alternative mechanisms for molecule assisted recombination of divertor plasmas. Internat. Workshop on Atomic and Molecular Processes in Divertor Plasmas, Oak Ridge National Laboratory, Oak Ridge, USA, Oct.12-13, 2000, (published; D.176)
30. Electron-molecule collisions in fusion divertor plasmas. Internat. Symp. Electron-Molecule Collisions and Swarms, EMS-01, Lincoln, NE, USA; July 14-16, 2001, (published; C. 22)

31. Cross section data for hydrogen plasma applications. (with R.Celiberto) 3rd ICAMDATA, Gatlinburg, USA, April 24-27, 2002, (published, C.23)
32. Collision processes of atomic and molecular hydrogen in fusion plasmas. IAEA Techn. Meeting on "Atomic and Plasma-Material Interaction Data for Fusion Science and Technology", Juelich, Germany, Oct. 28-31, 2002, (published, B11)
33. The role of atomic and molecular processes in magnetic fusion plasmas. (with D.Reiter) 4th ICAMDATA, Toki, Japan, Nov. 28 – Dec.2, 2004, (published, C.24).
34. Molecular processes in fusion edge plasmas. Ann. Meeting of Japan Society of Plasma Science and Fusion Research, Tsukuba, Japan, Nov.28 – 30, 2006 (unpublished).
35. Debye plasma effects on atomic structure and dynamics (with J.G.Wang). 6th ICAMDATA, Beijing, China, Oct. 28 – 31 (2008) (published, C.25)
36. Resonant vibrational excitation of rovibrationally excited H₂ and D₂ by electron impact. (with R.Celiberto, V.Laporta, J.M.Wadehra) 28th Summer School & Internat. Symp. on the Physics of Ionized Gases - SPIG 2016, Belgrade, Aug 29 - Sep 2, 2016 (unpublished; Abstract in: Contributed Papers & Abstracts of Invited Lectures, Topical Invited Lectures, Progress Reports and Workshop Lectures, SPIG 2016, Eds D. Marić et al., Belgrade, Faculty of Physics, 2016. P. 24)
37. Oscillator strengths of hydrogen-like ions in quantum plasmas. (with Y.Y. Qi, J.G. Wang) 28th Summer School & Internat. Symp. on the Physics of Ionized Gases - SPIG 2016, Belgrade, Aug 29 - Sep 2, 2016 (unpublished; Abstract in: Contributed Papers & Abstracts of Invited Lectures, Topical Invited Lectures, Progress Reports and Workshop Lectures, SPIG 2016, Eds D. Marić et al., Belgrade, Faculty of Physics, 2016. P. 59)
38. Polarization of Lyman- α radiation from H⁺ + H collisions in Debye plasmas. (with D. Jakimovski) 28th Summer School & Internat. Symp. on the Physics of Ionized Gases - SPIG 2016, Belgrade, Aug 29 - Sep 2, 2016 (unpublished; Abstract in: Contributed Papers & Abstracts of Invited Lectures, Topical Invited Lectures, Progress Reports and Workshop Lectures, SPIG 2016, Eds D. Marić et al., Belgrade, Faculty of Physics, 2016. P. 67)
39. Electron capture in H⁺ + H collisions with cosine-Debye-Hückel screened interaction. (with D. Jakimovski) 28th Summer School & Internat. Symp. on the Physics of Ionized Gases - SPIG 2016, Belgrade, Aug 29 - Sep 2, 2016 (unpublished; Abstract in: Contributed Papers & Abstracts of Invited Lectures, Topical Invited Lectures, Progress Reports and Workshop Lectures, SPIG 2016, Eds D. Marić et al., Belgrade, Faculty of Physics, 2016. P. 71)
40. Spin-resolved electron capture in Be³⁺ + Li collisions. (with L. Liu, C.H. Liu, J.G. Wang) 28th Summer School & Internat. Symp. on the Physics of Ionized Gases - SPIG 2016, Belgrade, Aug 29 - Sep 2, 2016 (unpublished; Abstract in: Contributed Papers & Abstracts of Invited Lectures, Topical Invited Lectures, Progress Reports and Workshop Lectures, SPIG 2016, Eds D. Marić et al., Belgrade, Faculty of Physics, 2016. P. 75)

41. Atomic and molecular processes in plasma-surface interactions and boundary plasma science. (with D. Reiter) International Conference on Plasma-Surface Interactions, Princeton, USA, June 18–22, 2018.
42. Electron capture and excitation in proton collisions with Li⁺ and Sn. And: Electron capture and excitation in H⁺ collisions with Li⁺ and Sn (PPT, 31 slds.). (with D. Jakimovski) 1st Research Coordination Meeting of the CRP on Atomic Data for Vapour Shielding in Fusion Devices, (org. IAEA), Vienna, Austria, IAEA Headquarters, Room C0229, 13–15 March 2019.

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