

Publications

Referred journals

According to webofknowledge.com the **citation index** is 1300 and **h-index** is 18, according to google.scholar.com, these numbers are **1800** and **21** respectively.

- 63) J.P. Wiens, J. C. Sawyer, T. M. Miller, N. S. Shuman, A. A. Viggiano, M. Khamesian, V. Kokoouline, and I.I. Fabrikant
Electron attachment to the interhalogen compounds ClF, ICl, and IBr.
Submitted to Phys. Rev. A
- 62) N. Douguet, S. Fonseca dos Santos, M. Raoult, O. Dulieu, A. E. Orel, and V. Kokoouline
Indirect radiative electron attachment to polyatomic carbon radicals.
In preparation
- 61) N. Douguet, E. Assemat, and V. Kokoouline
Complete symmetry characterization in collisions involving four identical atoms.
Submitted
- 60) M. Khamesyan and V. Kokoouline
Rotational excitation of acetylene in collisions with electrons.
In preparation
- 59) D. Lapiere, V. Kokoouline, A. Alijah, and V. Tyuterev
Lifetimes of ozone metastable states above the dissociation threshold: impact on the dynamics.
In preparation
- 58) A. Alijah and V. Kokoouline
Vibrational states of the triplet electronic state of H_3^+ . The role of non-adiabatic coupling and geometrical phase.
Chem. Phys. **460**, 43 (2015) [doi:10.1016/j.chemphys.2015.04.020](https://doi.org/10.1016/j.chemphys.2015.04.020)
- 57) N. Douguet, S. Fonseca dos Santos, M. Raoult, O. Dulieu, A.E. Orel, and V. Kokoouline
Theoretical study of radiative electron attachment to CN, C_2H , and C_4H molecules
J. Chem. Phys. **142**, 234309 (2015) <http://dx.doi.org/10.1063/1.4922691>
- 56) N. Douguet, S. Fonseca dos Santos, V. Kokoouline, and A.E. Orel
Simplified model to describe the dissociative recombination of linear polyatomic ions of astrophysical interest
EPJ Web of Conferences **84**, 07003 (2015), <http://dx.doi.org/10.1051/epjconf/20158407003>
- 55) N. Douguet, V. Kokoouline, and A.E. Orel
Photodetachment cross sections of the $C_{2n}H^-$ ($n=1-3$) hydrocarbon chain anions
Phys. Rev. A **90**, 063410 (2014) <http://dx.doi.org/10.1103/PhysRevA.90.063410>

- 54) M.-Y. Song, J. S. Yoon, H. Cho, Y. Itikawa, G. Karwasz, V. Kokoouline, Y. Nakamura, J. Tennyson
Cross sections for electron collisions with methane
J. Phys. Chem. Ref. Data **44**, 023101 (2015); doi: [10.1063/1.4918630](https://doi.org/10.1063/1.4918630)
- 53) S. Fonseca dos Santos, N. Douguet, V. Kokoouline, and A.E. Orel
Scattering matrix approach to the dissociative recombination of N_2H^+ and HCO^+
[J. Chem. Phys. **140**, 164308 \(2014\)](https://doi.org/10.1063/1.4918630)
- 52) N. Douguet, S. Fonseca dos Santos, M. Raoult, O. Dulieu, A.E. Orel, and V. Kokoouline
Theory of radiative electron attachment to molecules: Benchmark study of CN^-
[Phys. Rev. A **88**, 052710 \(2013\)](https://doi.org/10.1063/1.4918630). This article was selected by the Editorial Board of the Physical Review as an [Editors' Suggestion](#).
- 51) V. Kokoouline, A. Wearne, R. Lefebvre, and O. Atabek
Laser-controlled rotational cooling of Na_2 based on exceptional points
[Phys. Rev. A **88**, 033408 \(2013\)](https://doi.org/10.1103/PhysRevA.88.033408), doi:10.1103/PhysRevA.88.033408
- 50) N. Douguet, A.E. Orel, and V. Kokoouline
Breaking a tetrahedral molecular ion with electrons: Study of NH_4^+
J. Phys. B: At. Mol. Opt. Phys. **45**, 051001 [6pp] (2012) doi:10.1088/0953-4075/45/5/051001 **iopselect**
and [this article is selected by the Editorial Board of J. Phys. B as a Highlight of the year](#)
- 49) M. Ayouz, I. Mikhailov, D. Babikov, M. Raoult, S. Galtier, O. Dulieu, V. Kokoouline
Potential energy and dipole moment surfaces of HCO^+ for the search of H in the interstellar medium
[J. Chem. Phys. **136**, 224310 \[9pp\] \(2012\)](https://doi.org/10.1063/1.4724096); doi: 10.1063/1.4724096
- 48) N. Douguet, A.E. Orel, C.H. Greene, and V. Kokoouline
Theory of dissociative recombination of highly-symmetric polyatomic ions
[Phys. Rev. Lett. **108**, 023202 \[5pp\], 2012](https://doi.org/10.1103/PhysRevLett.108.023202) doi:10.1103/PhysRevLett.108.023202
- 47) V. Kokoouline, N. Douguet, and C.H. Greene
Breaking bonds with electrons: Dissociative recombination of molecular ions
[Chem. Phys. Lett. **507**, 1 \[10pp\] \(2011\)](https://doi.org/10.1063/1.1811111)
- 46) A. Petrigani, S. Altevogt, M. H. Berg, D. Bing, M. Grieser, J. Hoffmann, B. Jordon-Thaden, C. Krantz, M. B. Mendes, O. Novotny, S. Novotny, D. A. Orlov, R. Repnow, T. Sorg, J. Stützel, A. Wolf, H. Buhr, H. Kreckel, V. Kokoouline, C. H. Greene
Resonant structure of low-energy H_3^+ dissociative recombination
[Phys. Rev. A **83**, 032711 \[10pp\] \(2011\)](https://doi.org/10.1063/1.1811111)
- 45) N. Douguet, I. Mikhailov, A. Orel, I. Schneider, C.H. Greene, V. Kokoouline
The role of the Jahn-Teller coupling in dissociative recombination of H_3O^+ and H_3^+ ions
[J. Phys.: Conf. Series **300**, 012015 \[13pp\] \(2011\)](https://doi.org/10.1063/1.1811111)

- 44) M. Lepers, O. Dulieu, V. Kokoouline
Photoassociation of a cold atom-molecule pair II: long-range dispersion interaction
[Phys. Rev. A **83**, 042707 \[10pp\] \(2011\)](#)
- 43) O. Atabek, R. Lefebvre, M. Lepers, A. Jaouadi, O. Dulieu, and V. Kokoouline
Proposal for a laser control of vibrational cooling in Na₂ using resonance coalescence
[Phys. Rev. Lett. **106**, 173002 \[4pp\] \(2011\)](#)
- 42) M. Ayouz, R. Lopez, M. Raoult, J. Robert, O. Dulieu, V. Kokoouline
Formation of the simplest stable negative molecular ion H₃⁻ in interstellar medium
[Phys. Rev. A. **83**, 052712 \[8pp\] \(2011\)](#)
- 41) M. Lepers, O. Dulieu, V. Kokoouline
Photoassociation of a cold atom-molecule pair: long-range quadrupole-quadrupole interactions
[Phys. Rev. A **82**, 042711 \[8pp\] \(2010\)](#)
- 40) T.J. Glosík, R. Plašil, T.Kotrík, P. Dohnal, J. Varju, M. Hejduk, I. Korolov, Š. Roučka, V. Kokoouline
Binary and ternary recombination of H₃⁺ and D₃⁺ ions with electrons in low temperature plasma
[Molec. Phys. **108**, 2253 \[12pp\] \(2010\)](#) **Invited article**
- 39) T. Kotrik, P. Dohnal, I. Korolov, R. Plasil, Š. Roučka, J. Glosik, C.H. Greene, V. Kokoouline
Temperature dependence of binary and ternary recombination of D₃⁺ ions with electrons
[J. Chem. Phys. **133**, 034305 \[8pp\] \(2010\)](#)
- 38) M. Ayouz, O. Dulieu, R. Guerout, J. Robert, V. Kokoouline
Potential energy and dipole moment surfaces of H₃⁻ molecule
[J. Chem. Phys. **132**, 194309 \[11pp\] \(2010\)](#)
- 37) V. Kokoouline, A. Faure, J. Tennyson, and C.H. Greene
Calculation of rate constants for vibrational and rotational excitation of the H₃⁺ ion by electron impact
[Mon. Not. R. Astron. Soc. **405**, 1195 \[8pp\] \(2010\)](#)
- 36) N. Douguet, V. Kokoouline, and C.H. Greene
Theory of dissociative recombination of a linear triatomic ion with permanent electric dipole moment: Study of HCO⁺
[Phys. Rev. A **80**, 062712 \[6pp\] \(2009\)](#)
- 35) J. Glosik, I. Korolov, R. Plasil, T. Kotrik, P. Dohnal, O. Novotny, J. Varju, C.H. Greene, V. Kokoouline
[Binary and ternary recombination of D₃⁺ ions with electrons in He-D₂ plasma](#)
Phys. Rev. A **80**, 042706 [7pp] (2009)
- 34) V. Kokoouline, R. Čurík, and C. H. Greene
Non-adiabatic effects in dissociative recombination of molecular ions.
[J. Phys. Conf. Ser. **192**, 012017 \[13pp\], \(2009\)](#)

- 33) A. Faure, J. Tennyson, V. Kokoouline and C.H Greene
Rotational excitation of interstellar molecular ions by electrons.
[J. Phys. Conf. Ser. 192, 012016 \[6pp\], \(2009\)](#)
- 32) J. Glosik, R. Plasil, I. Korolov, T. Kotrik, P. Dohnal, O. Novotny, P. Hlavenka, J. Varju, V. Kokoouline, C.H. Greene
Temperature dependence of binary and ternary recombination of H_3^+ ions with electron
[Phys. Rev. A 79, 052707 \[12pp\] \(2009\)](#)
- 31) J. Blandon and V. Kokoouline
Geometrical phase driven predissociation: Lifetimes of $2^2A'$ levels of H_3
[Phys. Rev. Lett. 102, 143002 \[4pp\] \(2009\)](#)
- 30) L. Pagani, C. Vastel, E. Hugo, V. Kokoouline, C. H. Greene, E. Bayet, A. Bacmann, S. Schlemmer, C. Ceccarelli
Chemical modeling of L183 (=L134N): an estimate of the ortho/para H_2 ratio
[Astronomy & Astrophysics 494, 623 \[22pp\] \(2009\)](#)
- 29) N. Douguet, V. Kokoouline, and C.H. Greene
Theoretical rate of dissociative recombination of HCO^+ and DCO^+ ions.
[Phys. Rev. A 77, 064703 \(2008\)](#)
- 28) N. Douguet, J. Blandon, and V. Kokoouline
Correlation diagrams in collisions of three identical particles.
[J. Phys. B: At. Mol. Opt. Phys. 41, 045202 \(2008\)](#)
- 27) J. Glosik, I. Korolov, R. Plasil, O. Novotny, T. Kotrik, P. Hlavenka, J. Varju, I.A.Mikhailov, V. Kokoouline, and C. H. Greene
Recombination of H_3^+ ions in the Afterglow of a He-Ar- H_2 Plasma.
[J. Phys. B: At. Mol. Opt. Phys. 41, 191001 \(2008\)](#)
- 26) S. Fonseca dos Santos, C.H. Greene, and V. Kokoouline
Dissociative recombination of H_3^+ in the ground and excited vibrational states.
[J. Chem. Phys. 127, 124309 \[8pp\] \(2007\)](#)
- 25) J. Blandon, V. Kokoouline, and F. Masnou-Seeuws
Method for finding of three-body resonances using hyperspherical coordinates and slow variable representation.
[Phys. Rev. A 75, 042508 \(2007\)](#)
- 24) **Near threshold rotational excitation of molecular ions by electron-impact.**
A. Faure, V. Kokoouline, C. H. Greene and J. Tennyson
[J. Phys. B: At. Mol. Opt. Phys. 39, 4261 \(2006\)](#)

- 23) I.A. Mikhailov, V. Kokoouline, A. Larson, S. Tonzani, C.H. Greene
Renner-Teller effects in HCO⁺ dissociative recombination.
[Phys. Rev. A 74, 032707 \(2006\)](#)
- 22) C.H. Greene and V. Kokoouline
Theoretical progress and challenges in H₃⁺ dissociative recombination.
[Phil. Trans. R. Soc. A 364, 2965 \(16pp\) \(2006\)](#)
- 21) V. Kokoouline and F. Masnou-Seeuws
Calculation of loosely bound levels for three-body quantum systems using hyperspherical coordinates with a mapping procedure.
[Phys. Rev. A 73, 012702 \(2006\)](#)
- 20) V. Kokoouline and C. H. Greene
Theoretical study of dissociative recombination of C_{2v} triatomic ions: application to H₂D⁺ and D₂H⁺.
[Phys. Rev. A 72, 022712 \(2005\)](#)
- 19) V. Kokoouline and C. H. Greene
Theoretical study of the H₃⁺ ion dissociative recombination process.
[J. Phys. Conf. Ser. 4,74 \(2005\)](#)
- 18) V. Kokoouline and C. H. Greene
Triatomic dissociative recombination theory: Jahn-Teller coupling among infinitely many Born-Oppenheimer surfaces.
[Faraday Discussion 127, 413 \(2004\)](#)
- 17) V. Kokoouline and C.H. Greene
Dissociative recombination of polyatomic molecules: a new mechanism.
[Physica Scripta T110, 178 \(2004\)](#)
- 16) V. Kokoouline and C.H. Greene
Photofragmentation of the H₃ molecule, including Jahn-Teller coupling effects.
[Phys. Rev. A 69, 032711 \(2004\)](#)
- 15) B. Borca, J. W. Dunn, V. Kokoouline, and C. H. Greene
An atom-molecule laser fed by stimulated three-body recombination.
[Phys. Rev. Lett. 91, 070404 \(2003\)](#)
- 14) P. Cacciani, V. Kokoouline, N. Bouloufa, F. Masnou-Seeuws, and R. Vetter
Predissociation in the B ¹Π_u state of ⁶Li⁷Li: Accidental perturbations beyond the ungerade-gerade symmetry breaking.
[Phys. Rev. A 68, 042506 \(2003\)](#)
- 13) V. Kokoouline and C.H. Greene
Unified theoretical treatment of dissociative recombination of D_{3h} triatomic ions: application to H₃

and D_3 .

[Phys. Rev. A 68, 012703 \(2003\)](#)

- 12) V. Kokoouline, R. Santra, and C.H. Greene
Multichannel study of cold collisions between metastable Sr atoms.
[Phys. Rev. Lett. 90, 253201 \(2003\)](#)
- 11) V. Kokoouline and C.H. Greene
Theory of dissociative recombination of D_{3h} triatomic ions, applied to H_3^+ .
[Phys. Rev. Lett. 90, 133201 \(2003\)](#)
- 10) V. Kokoouline, C. Drag, P. Pillet, and F. Masnou-Seeuws
Lu-Fano plots for interpretation of photoassociation experiments.
[Phys Rev. A 65 062710 \(2002\)](#)
- 9) V. Kokoouline, C.H. Greene, and B.D. Esry
Mechanism for the destruction of H_3^+ ions by electron collision.
[Nature 412, 891 \(2001\)](#)
- 8) N. Bouloufa, P. Cacciani, V. Kokoouline, F. Masnou-Seeuws, R. Vetter, and Li Li
Predissociation induced by ungerade-gerade symmetry breaking in the $B^1\Pi_u$ state of the $^6Li^7Li$ molecule.
[Phys. Rev. A 63, 042507 \(2001\)](#)
- 7) V. Kokoouline, J. Vala, and R. Kosloff
Tuning the scattering length on the ground triplet state of Cs_2 .
[J. Chem. Phys. 114, 3046 \(2001\)](#)
- 6) V. Ostrovsky, V. Kokoouline, E. Luc-Koenig, and F. Masnou-Seeuws
Lu-Fano plots for potentials with power-law tail.
[J. Phys. B: At. Mol. Opt. Phys. 34, L27 \(2001\)](#)
- 5) P. Cacciani and V. Kokoouline
Predissociation induced by ungerade-gerade symmetry breaking in $^6Li^7Li$ molecule.
[Phys. Rev. Lett. 84, 5296 \(2000\)](#)
- 4) V. Kokoouline, O. Dulieu, R. Kosloff, and F. Masnou-Seeuws
Theoretical treatment of channel mixing in excited Rb_2 and Cs_2 ultracold molecules. Determination of predissociation lifetimes with coordinate mapping.
[Phys. Rev. A 62, 032716 \(2000\)](#)
- 3) V. Kokoouline, O. Dulieu, and F. Masnou-Seeuws
Theoretical treatment of channel mixing in excited Rb_2 and Cs_2 ultracold molecules. Perturbations in (σ_u^+) photoassociation and fluorescence spectra.
[Phys. Rev. A 62, 022504 \(2000\)](#)

- 2) M. Vatasescu, O. Dulieu, C. Amiot, D. Comparat, C. Drag, V. Kokoouline, F. Masnou-Seeuws, and P. Pillet
Multichannel tunneling in the $\text{Cs}_2 \text{ o}_g^-$ photoassociation spectrum.
[Phys. Rev. A 61, 044701 \(2000\)](#)
- 1) V. Kokoouline, O. Dulieu, R. Kosloff, and F. Masnou-Seeuws
Mapped Fourier methods for long-range molecules: Application to perturbations in the $\text{Rb}_2 (\text{o}_u^+)$ photoassociation spectrum.
[J. Chem. Phys. 110, 9865 \(1999\)](#)

Book chapters

- 2) V. Kokoouline, K. Willner, O. Dulieu, and F. Masnou-Seeuws
Mapped Fourier Grid Methods For Ultracold Molecules.
 in *Interactions of Cold Atoms and Molecules* edited by P. Soldan, M.T. Cvitas, J. Hutson, and C.S. Adams, Warrington, UK, 2002 (ISBN 0-9522736-9-1) Preprint at
http://physics.ucf.edu/~slavako/publ/ccp6_let.ps
- 1) C.H. Greene, V. Kokoouline, and B.D. Esry
Importance of Jahn-Teller coupling in the dissociative recombination of H_3^+ by low energy electrons.
 in *"Dissociative Recombination of Molecular Ions with Electrons"*, edited S. L. Guberman (Kluwer Academic/Plenum Publishers, New York), 2003. ISBN 0-306-47765-3 URL:
<http://www.wkap.nl/prod/b/0-306-47765-3>.

Non-Referred

- 2) O. Dulieu, M. Ayouz, M. Raoult, J. Robert, and V. Kokoouline
Could the H_3^- ion exist in interstellar medium?
[AIP Conference Proceedings 1642, 366 \(2015\); doi: 10.1063/1.4906695](#)
- 1) A. Faure, J. Tennyson, H.N. Varambhia, V. Kokoouline, C.H. Greene and T. Stoecklin
Electron-Impact Excitation of Interstellar Molecules
 SFA2A 2007 conference proceedings (non-referred) reprint at
http://www.physics.ucf.edu/~slavako/publ/Faure_SF2A_2007.pdf

Ph. D. Thesis

- T) **THEORETICAL APPROACH TO COLD MOLECULES: DEVELOPMENT OF NUMERICAL METHODS. TRAITEMENT THÉORIQUE DES MOLECULES FROIDES: MISE AU POINT DE MÉTHODES NUMÉRIQUES.**
 Université Paris XI, Orsay, France (1999). Available at
<http://www.physics.ucf.edu/~slavako/publ/these.pdf>

Conference presentations

Invited conferences (not all listed)

[2015 KIDA workshop](#), May 5-7, 2015, CNES - French Space Agency, Paris, France.

[Radiative electron attachment to molecules of astrophysical interest: Direct and indirect mechanisms](#) .

[Decennial IAEA Technical Meeting on Atomic, Molecular and Plasma-Material Interaction Data for Fusion Science and Technology](#), December 15-19, 2014, International Atomic Energy Agency and National Fusion Research Institute, Daejeon, S. Korea.

[Uncertainty evaluation in theoretical calculations of cross sections and rate coefficients](#) V. Kokoouline
invited talk,

[Joint Workshop with IAEA on Uncertainty Assessment for Atomic and Molecular Data](#) July 7-9, 2014, Institute for Theoretical Atomic, Molecular, and Optical Physics, at the Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, USA

Development of a procedure for the uncertainty evaluation in theoretical calculations of cross sections and rate coefficients V. Kokoouline and W. Richardson

invited talk

2nd Group Meeting on Procedures for Evaluation of Acetylene Molecule Collision Processes (supported by the National Fusion Research Institute, Seoul, South Korea), July 4, 2014, Cumberland Lodge, The Great Park, Windsor, UK. *Evaluation of theoretical and experimental cross sections for rotational and vibrational excitation of HCCH molecules in collisions with electrons.*

[247th ACS National Meeting and Exposition: Texas, Chemistry and Materials for Energy](#) March 16-20, 2014, Dallas

Theory of radiative electron attachment to molecules: Benchmark study of CN⁻, V. Kokoouline

Technical meeting, January 8-9, 2014, Data Center for Plasma Properties of the National Fusion Research Institute, Seoul, South Korea. *Evaluation of theoretical and experimental cross sections for rotational and vibrational excitation of CH₄ molecules in collisions with electrons II.*

invited talk

Technical meeting, December 6, 2013, International Atomic Energy Agency, UN, Vienna, Austria. *Evaluation of theoretical cross sections for elastic and inelastic processes in collisions between electrons with N₂ and N₂⁺ molecules*

invited talk

[9th International Conference on Dissociative Recombination: Theory, Experiment and Applications.](#)

July 7-12, 2013, Paris, France

Radiative and dissociative electron attachment to molecules of astrophysical interest, V. Kokoouline

Technical meeting, July 4, 2013, International Atomic Energy Agency, UN, Vienna, Austria. *Recent progress in theoretical methods for electron-molecule collisions at low collision energies*

[invited talk](#)

Technical meeting, June 24-28, 2013, Data Center for Plasma Properties of the National Fusion Research Institute, Daejeon, South Korea. *Evaluation of theoretical and experimental cross sections for rotational and vibrational excitation of CH₄ molecules in collisions with electrons I.*

[invited talk](#)

Technical meeting, May 7, 2013, International Atomic Energy Agency, UN, Vienna, Austria. *Uncertainty assessment of theoretical data on electron-molecule collisions: Examples of H₃⁺ and CH₄.*

[invited talk](#)

[Theory of Electron-Molecule Collisions for Astrophysics, Biophysics and Low Temperature Plasmas: Opportunities and Challenges](#), December 3-5, 2012, Institute for Theoretical Atomic, Molecular, and Optical Physics, at the Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, USA

Radiative electron attachment to molecules of astrophysical interest. Benchmark study of CN⁻, V.

Kokoouline

Chemistry, astronomy and physics of H₃⁺, February 9-11, 2012 Royal Society, UK, *Formation of H₃⁻ and other negative molecular ions MH⁻ in the interstellar medium by M and an H⁻ association, V.*

Kokoouline

6th Workshop on '**TITAN – observations, experiments, computations, and modeling**' March 12-14, 2012 Miami, Florida, *Dissociative recombination of molecular ions relevant for Titan's atmosphere, V.*

Kokoouline

Ion chemistry in space, May 17-19 2011, Prague, Czech Republic
<http://www.physto.se/~wgeppert/Prague2011/Programme.html>

Formation of negative molecular ions MH⁻ in the interstellar medium by radiative association of a molecule M and an H⁻ ion, V. Kokoouline

Processus physico-chimiques d'intérêt astrophysique: des observations aux calculs théoriques, June 13-16 2011, Saint Florent, France

Formation des anions moléculaires par association et attachement radiatif, V. Kokoouline

DR2010 8th International. Conference on Dissociative Recombination: Theory, Experiments & Applications, August 16-20, 2010, Granlibakken, CA, USA

Theoretical treatment of dissociative recombination of H₃O⁺, V. Kokoouline

Meeting of division of atomic, molecular and optical physics of the French Physics Society, (PAMO 2010), June 29-July 2, 2010, Orsay, France <http://www.pamojsm2010.fr>

Étude théorique de la formation de l'ion moléculaire H_3^- : proposition d'observation de H_3^- dans le milieu interstellaire, V. Kokoouline, M. Ayouz, M. Raoult, J. Robert, O. Dulieu

The 40th APS Annual Meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP 2009) May 19–23, 2009, University of Virginia in Charlottesville, Virginia. <http://www.damop2009.org/> Theory of dissociative recombination of triatomic molecular ions V. Kokoouline <http://meetings.aps.org/link/BAPS.2009.DAMOP.S6.3>

Workshop “Opportunities and challenges for theoretical molecular physics in modern fundamental and applied science”, December 8, 2009, Université Paris-Sud, Campus d'Orsay. Few body processes in a low temperature gas: methods and possible applications V. Kokoouline

MOLEC XVII European Conference on Dynamics of Molecular Systems, August 23-29, 2008, St-Petersburg, Russia, <http://www.ioffe.ru/MOLEC17/> Theoretical treatment of dissociative recombination of small polyatomic ions, V. Kokoouline

Meeting of Division of atomic, molecular and optical physics of the French Physics Society, (PAMO 2008), July 7-10, 2008, Lille, France <http://www.pamojsm2008.fr/> L'approche théorique pour la recombinaison dissociative de H_3^+ , V. Kokoouline, S. Santos, C.H. Greene

VI International Symposium on Dissociative Recombination, (DR 2007), July 18-23, 2007, Ameland, Netherlands; http://www.ru.nl/molphys/dr2007_o/dr2007 Dissociative recombination of H_3^+ in the ground and excited vibrational states V. Kokoouline and C.H. Greene

Physics, Chemistry, and Astronomy of H_3^+ ; January 16-18, 2006; Royal Society, London, UK Theoretical progress and challenges in H_3^+ dissociative recombination V. Kokoouline and C.H. Greene (presented by C.H. Greene)

DAMOP 2002; May 2002, Williamsburg, VA, U.S.A. <http://www.aps.org/meet/DAMOP02/> Dissociative recombination of H_3^+ : Jahn-Teller coupling and the competition between autoionization and dissociation, V. Kokoouline and C.H. Greene (hot topic)

Meeting "Ultracold Molecules and Bose-Einstein Condensation", March 2002, Les Houches, France; <http://www.lac.u-psud.fr/coldmolecules/CM2002/index.html> Method for theoretical treatment of dissociative recombination of three-atomic molecules V. Kokoouline and C.H. Greene

CCP 6 Meeting “Interactions of Cold Atoms and Molecules”, September 19-22, 2002, Durham (UK) Theoretical methods for ultracold molecules V. Kokoouline, K. Willner, O. Dulieu and F. Masnou-Seeuws (presented by F. Masnou-Seeuws)

Invited colloquia and seminars

Elements of theoretical description of electron-molecule collisions, December 10, 2014, Plasma Technology Research Center, Gunsan, S. Korea.

Evaluation of theoretical cross sections for elastic and inelastic processes in collisions between electrons with acetylene, December 14, 2014, National Fusion Research Institute, Daejeon, S. Korea.

Evaluation of theoretical cross sections for elastic and inelastic processes in collisions between electrons with N₂ and N₂⁺ molecules, December 6, 2013, International Atomic Energy Agency, UN, Vienna, Austria.

Recent progress in theoretical methods for electron-molecule collisions at low collision energies, July 4, 2013, International Atomic Energy Agency, UN, Vienna, Austria.

Uncertainty assessment of theoretical data on electron-molecule collisions: Examples of H₃⁺ and CH₄, May 7, 2013, International Atomic Energy Agency, UN, Vienna, Austria.

Electron-impact induced dissociation of molecules at low energies, January 24, 2013, National Fusion Research Institute, Gunsan, South Korea

Ab initio calculations of rate coefficients for dissociative and super-elastic collisions of molecular ions with electrons at low energies, May 29, 2012, University College London, London, UK

Rotationally and vibrationally resolved cross-sections for dissociative recombination and (de)excitation of H₃⁺ by electron impact, August 11, 2011, International Atomic Energy Agency, UN, Vienna, Austria.

H₃⁻: the simplest stable negative molecular ion. Can it be observed in the interstellar medium? June 16 2010, Physikalisches Institut, www.molecules-and-ions.uni-freiburg.de Universität Freiburg Freiburg, Germany

On 3-body bound and scattering states near dissociation June 17, 2009, Laboratoire Aimé Cotton, Université Paris XI, Orsay, France

On theoretical techniques in few-body collisions at low energies June 13 and 20, 2008, Laboratoire de la Photophysique Moléculaire, Université Paris XI, Orsay, France

Method for calculation of 3-body resonances near dissociation June 5, 2008, Laboratoire Aimé Cotton, **CNRS**, Orsay, France

Theory of dissociative recombination of tri-atomic ions relevant for interstellar chemistry February 2, 2007. Department of Physics, **University of Nevada**, Reno, Nevada

Theory of dissociative recombination of tri-atomic ions relevant for interstellar chemistry October 27, 2006. Department of Chemistry, **Marquette University**, Milwaukee, Wisconsin

Theoretical treatment of dissociative recombination of small polyatomic ions July 13, 2007, Laboratoire Aimé Cotton, **CNRS**, Orsay, France

Theoretical study of dissociative recombination of tri-atomic molecular ions October 28, 2005, Department of Physics and Astronomy, **Stony Brook University**, NY and and June 2005, Laboratoire Aimé Cotton, **CNRS**, Orsay, France

The Coldest Atoms in the Universe: Bose-Einstein Condensation, December 5 2003, **University of North Florida**, Jacksonville, FL

Dissociative recombination of H_3^+ : Jahn-Teller coupling and the competition between autoionization and dissociation February 2002, JILA, **University of Colorado at Boulder**, CO and March 2002, Laboratoire Aimé Cotton, **CNRS**, Orsay, France

Selected conferences talks (mostly contributed talks)

DAMOP 2014-45th Annual APS Division of Atomic, Molecular, and Optical Physics, June 2-6, 2014; Madison, Wisconsin

- (a) [Indirect dissociative recombination of water molecule at low electronic energies](#) S. Fonseca dos Santos, N. Douguet, V. Kokoouline, and A. Orel
- (b) [Photodetachment and formation mechanisms of cosmic anions](#) N. Douguet, V. Kokoouline, M. Raoult, and A. Orel
- (c) [Recent developments in theoretical treatment of dissociative recombination](#) V. Kokoouline, N. Douguet, S. Fonseca dos Santos, and A. Orel

DAMOP 2013-44th Annual APS Division of Atomic, Molecular, and Optical Physics, June 3–7, 2013; Quebec City, Canada

- (a) [Dissociative Recombination of \$N_2H^+\$](#) S. Fonseca dos Santos, N. Douguet, V. Kokoouline, and A. Orel, A. Larson
- (b) [Radiative electronic attachment to a ro-vibrating diatomic molecule: Benchmark study of \$CN^-\$](#) , N. Douguet, V. Kokoouline, S. Fonseca dos Santos, O. Dulieu, M. Raoult, and A. Orel
- (c) [Simplified model to describe the dissociative recombination of linear polyatomic ions of astrophysical interest](#), S. Fonseca dos Santos, N. Douguet, V. Kokoouline, and A. Orel
- (d) [Formation of negative ions in the interstellar medium by dissociative electron attachment to the \$H_2CN\$ molecule](#), V. Kokoouline, S. Fonseca dos Santos, N. Douguet, and A. Orel
- (e) [Radiative electronic attachment to molecules of astrophysical interest](#) N. Douguet, V. Kokoouline, S. Fonseca dos Santos, O. Dulieu, M. Raoult, and A. Orel

American Physical Society March Meeting. March 18–22, 2013, Baltimore, Maryland.

- (a) [Radiative electron attachment to molecules of astrophysical interest. Benchmark study of \$CN^-\$](#) . V. Kokoouline, N. Douguet, S. Fonseca dos Santos, O. Dulieu, M. Raoult, A. E. Orel.
- (b) [Laser Controlled Rotational Cooling in \$Na_2\$ Based on Exceptional Points](#) A. Wearne, V. Kokoouline, R. Levebvre, O. Atabek.

DAMOP 2012-43th Annual APS Division of Atomic, Molecular, and Optical Physics June 4–8, 2012; Orange County, California.

- (a) "Radiative electron attachment to molecules of astrophysical interest. Benchmark study of CN^- .", N. Douguet, O. Dulieu, V. Kokoouline, A. E. Orel, M. Raoult
- (b) "Theory of dissociative recombination of highly-symmetric polyatomic ions", V. Kokoouline, N. Douguet, A. Orel, C.H. Greene
- (c) "Breaking a tetrahedral molecular ion with electrons: Study of NH_4^{+} ", N. Douguet, V. Kokoouline, and A. Orel
- (d) "Mechanisms of dissociative recombination of N_2H^+ and HCO^+ ", S. Fonseca, N. Douguet, V. A. Orel, and Kokoouline

Chemistry, astronomy and physics of H_3^+ , February 9-11, 2012 Royal Society, UK, Dissociative recombination of H_3O^+ and CH_3^+ ions at low energies, N. Douguet, A.E. Orel, C.H. Greene, and V.Kokoouline

DAMOP 2011-42th Annual APS Division of Atomic, Molecular, and Optical Physics June 13-17, 2011 Atlanta, Georgia. <http://www.damop2011.org/>

- (a) "Formation of negative molecular ions MH^- in the interstellar medium by radiative association of a molecule M and an H^- ion", M. Ayouz, O. Dulieu, M. Raoult, S. Galtier, I. Mikhailov, and V. Kokoouline
- (b) "Radiative association of H_2 and H^- at low temperature: can we observe H_3^- in the interstellar medium?", M. Ayouz, O. Dulieu, M. Raoult, and V. Kokoouline,
- (c) "Study of the dissociative recombination of $HCNH^+$ and its isomers", N. Douguet, V. Kokoouline, and A. Orel

DAMOP 2010-41th Annual APS Division of Atomic, Molecular, and Optical Physics, May 25-29, 2010, Houston, Texas <http://damop2010.rice.edu/>

- (a) "Potential energy and dipole moment surfaces of H_3^- molecule", O. Dulieu, M. Ayouz, R. Guerout, J. Robert, V. Kokoouline
- (b) "Bound states, resonances, and formation of the H_3^- anion", V. Kokoouline, M. Ayouz, J. Robert, O. Dulieu
- (c) "Theory of photoassociation of ultra-cold trimers", M. Lepers, R. Vexiau, N. Bouloufa, V. Kokoouline, O. Dulieu
- (d) "Simplified Theoretical Model to treat the Dissociative Recombination of polyatomic ions by strong Jahn-Teller effects: Study of H_3O^+ and H_3^+ ions", N. Douguet, C.H. Greene, I. Mikhailov, and V. Kokoouline
- (e) "Symmetry in collisions of four identical atoms" N. Douguet, E. Assemat, V. Kokoouline

ECAMP 2010 - 10th European Conference on Atoms, Molecules and Photons <http://www.ecamp10.com/>, July 4-9, 2010,

- (a) "Theory of photoassociation of ultracold alkali trimers", M. Lepers, R. Vexiau, V. Kokoouline, N. Bouloufa1, O. Dulieu
- (b) "Formation of H_3^- by radiative association of H_2 and H^- . Could H_3^- be observed in the interstellar medium?", V. Kokoouline, M. Ayouz, M. Raoult, J. Robert, O. Dulieu
- (c) "Ionization spectroscopy of ultracold rubidium and cesium dimers as a tool for ultracold molecule formation schemes", A. Fioretti, N. Bouloufa, C. Gabbanini, O. Dulieu, V. Kokoouline, M. Viteau, M. Allegrini, H. Lignier, R. Horchani, D. Comparat, and P. Pillet

DPG Spring Meeting of the Section AMOP, Hannover, Germany <http://hannover10.dpg-tagungen.de/index.html?lang=en>, March 8-12 2010

Calculation of the structure of H_3^- negative ion, and of its formation rate in the interstellar medium M. Ayouz, V. Kokoouline, R. Guérout, M. Raoult, J. Robert, R. Wester, and O. Dulieu

Colloquium devoted to retirement of Dr. Françoise Masnou-Seeuws, May 15, 2009, Château du Campus du CNRS, Gif-sur-Yvette, France

Theoretical treatment of diatomic and triatomic collisions near the dissociation V. Kokoouline

DAMOP 2009-40th Annual APS Division of Atomic, Molecular, and Optical Physics, May 19-23, 2009, University of Virginia in Charlottesville, Virginia. <http://www.damop2009.org/>

- (a) Energy levels and mid-infrared spectrum of Rydberg states of triatomic hydrogen J. Wang, V. Kokoouline, and C.H. Greene

- (b) *Theory of Dissociative Recombination of linear triatomic ions with permanent dipole moment: Study of HCO⁺* N. Douguet, C.H. Greene, V. Kokoouline
(c) *Geometric phase driven predissociation: Lifetimes of 2²A' levels of H₃* J. Blandon, V.Kokoouline

DAMOP 2008-39th Annual APS Division of Atomic, Molecular, and Optical Physics, May 27-31, 2008, State College, PA; <http://meetings.aps.org/Meeting/DAMOP08/PersonIndex/1061>

- (a) *Long-range multipole potential model study for Rydberg states of triatomic hydrogen molecule* J. Wang, V.Kokoouline, and C.H.Greene
(b) *Theoretical description of dissociative recombination of HCO⁺* N. Douguet, C.H. Greene, V. Kokoouline
(c) *Time-dependent quantum defect theory for dissociative recombination of diatomic molecules* S. Santos, C.H. Greene, V.Kokoouline

DAMOP 2007-38th Annual APS Division of Atomic, Molecular, and Optical Physics, June 5-9 2007, Calgary, Alberta, Canada; <http://www.phas.ucalgary.ca/DAMOP07/>

- (a) *Dissociative recombination of H₃⁺* S. Santos, Kokoouline, and C.H. Greene
(b) *Method for calculation of three-body resonances* J. Blandon, V. Kokoouline, and F.Masnou-Seeuws
(c) *Correlation between bound and continuous states of three identical particles* N. Douguet and V. Kokoouline

The April Meeting 2007 of the American Physical Society, April 14-17, 2007, Jacksonville, FL; <http://meetings.aps.org/Meeting/APR07/Content/705>

- (a) *Correlation between bound and continuous states of three identical particles* N. Douguet and V. Kokoouline
(b) *Calculation of three-body resonances using slow-variable discretization coupled with complex absorbing potential* J. Blandon, V. Kokoouline, and F.Masnou-Seeuws

DAMOP 2006-37th Annual APS Division of Atomic, Molecular, and Optical Physics, May 16–20, 2006; Knoxville, TN

- (a) *On the rate of dissociative recombination of H₃⁺ in recent afterglow plasma experiments* V.Kokoouline, I. Mikhaylov
(b) *Renner-Teller effects in HCO⁺ dissociative recombination* V.Kokoouline, I.Mikhaylov, A.Larson, S.Tonzani, and C.H.Greene

DAMOP 2003-34th Annual APS Division of Atomic, Molecular, and Optical Physics, May 20-24, 2003; Boulder, CO

Theoretical study of elastic and inelastic rates of collisions between cold metastable ⁸⁸Sr(³P₂) atoms V.Kokoouline, R. Santra, and C.H. Greene

Physics, Chemistry, and Astronomy of H₃⁺ ; January 16-18, 2006; Royal Society, London, UK
Theoretical study of dissociative recombination of tri-atomic molecular ions V. Kokoouline et al.

Eilat Workshops on Multiscale Computations, April, 2000, Eilat, Israel

- I. NATO Advanced Research Workshop on Multiscale Computation in Chemistry and Biology
II. Israel Science Foundation Workshop on Multiscale Computational Methods in Chemistry

<http://www.wisdom.weizmann.ac.il/~achi/confoo/>

Mapped Fourier Grid Hamiltonian Method V.Kokoouline, R.Kosloff, O.Dulieu, and F.Masnou-Seeuws