

C.H. Isaac Yuen

Curriculum Vitae

Kennesaw State University
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Research Website

Last updated: October 14, 2026

Professional Appointments

- 8/2024–present **Assistant Professor**, Kennesaw State University, Marietta, Georgia, USA
9/2020–7/2024 **Postdoc Fellow**, Kansas State University, Manhattan, Kansas, USA
2/2018–4/2018 **Visiting Scientist**, University of Le Havre, Le Havre, France
9/2017–2/2018 **Visiting Scientist**, CentraleSupélec, University of Paris-Saclay, Gif-sur-Yvette, France
5/2015–8/2015 **Guest Researcher**, National Institute of Standard and Technology, Gaithersburg, Maryland, USA
7/2013–7/2014 **Research Assistant**, Hong Kong Baptist University, Kowloon, Hong Kong

Education

- 8/2014–8/2020 **Ph.D in Physics**, University of Central Florida, Orlando, Florida, USA
Thesis title *Theoretical Studies of Three-Body Collisions and Electron-Molecule Collisions Relevant to Astrophysical and Atmospheric Conditions*
Ph.D advisor Prof. Viatcheslav Kokoouline
2009–2013 **B. S. (Hons.) in Physics**, Hong Kong Baptist University, Kowloon, Hong Kong

Awards and Honors

- 2019 UCF College of Sciences General Scholarship
2017 Chateaubriand Fellowship

Publications

- [32] **C.H. Yuen** S. Hosseini-Zavareh, A. Alqasem, S. J. Wang, D. Ahlawat, F. Genty, M. Liu, Z. Holdsworth, L. Richard, P. Muddukrishna, E. Mullins, Yaguo Tang, P. Agostini, L. F. DiMauro, C. D. Lin, and C. I. Blaga. Identification of Molecular Isomers Using Laser-Induced Electron Diffraction **Commun. Chem.** (2026)
[31] **C.H. Yuen** Nonadiabatic theory for subcycle ionic dynamics in multielectron tunneling ionization, **Phys. Rev. A** 113, 043125 (2026)
[30] Su-Ju Wang, Chii-Dong Lin, **C.H. Yuen** Tunneling-ionization-assisted laser-induced electron diffraction for molecular differentiation: From isomers and structural analogs to dynamic systems, **Phys. Rev. A** 113, 043121 (2026)
[29] **C.H. Yuen** Enhanced Excited State Population and Coherence via Adiabatic Tunneling Ionization and Excitation, **Phys. Rev. A** 113, 013125 (2026)

- [28] Jingsong Gao, Hao Liang, Mahmudul Hasan, **Chi-Hong Yuen**, Ming-Shian Tsai, Ming-Chang Chen, Chii-Dong Lin, Kiyoshi Ueda, Hans Jakob Wörner, Meng Han Controlling rotational air lasing lineshape by carrier-envelope offset phase *Nat. Commun.* **16** (1), 9654 (2025)
- [27] Eleanor Weckwerth, Andrew J Howard, Chuan Cheng, Ian Gabalski, Aaron M Ghrist, Salma A Mohideen, Chii-Dong Lin, **Chi-Hong Yuen**, Philip H Bucksbaum Optical interference effect in strong-field electronic coherence spectroscopy *Phys. Rev. A* **12** (4), 043113 (2025) (corresponding author)
- [26] Yan-Wen Jia, Jui-Jui Wang, **C.H. Yuen**, C.D. Lin, and Song-Feng Zhao Modeling the dissociative sequential triple ionization of nitrogen molecules by ultrashort intense infrared laser pulses, *Phys. Rev. A* **112** (3), L031101 (2025) (**Letter**) (corresponding author)
- [25] Yan-Wen Jia, **C.H. Yuen**, Wen-Quan Jing, Zhong-Yao Zhou, C.D. Lin, and Song-Feng Zhao Improved model for the dissociative sequential double ionization of nitrogen molecules by an intense few-cycle infrared laser pulse, *Phys. Rev. A* **110** (2) 023112 (2024) (corresponding author)
- [24] Xianwu Jiang, Yingqi Chen, Hainan Liu, **C.H. Yuen** and Viatcheslav Kokoouline, Process of dissociation of NH_3 by electron impact in low-temperature plasma and its isotope effect, *Phys. Rev. A*, **110**, L020803 (2024) (**Letter**)(corresponding author)
- [23] L. He[†], **C.H. Yuen**[†], Y. He[†], S. Sun, E. Goetz, A.T. Le, Y. Deng, C. Xu, P. Lan, P. Lu, and C.D. Lin, Ultrafast picometer-resolved molecular structure imaging by laser-induced high-order harmonics, *Phys. Rev. Lett.*, **133** 023201 (2024). ([†]*co-first authors*)
- [22] **C.H. Yuen** and C.D. Lin, Rotation in Attosecond Vibronic Coherence Spectroscopy for Molecules, *Commun. Phys.*, **7**:115 (2024) (**Featured articles**)
- [21] **C.H. Yuen** and C.D. Lin, Theory of strong-field sequential double ionization of polyatomic molecules, *Phys. Rev. A*, **109**, 033108 (2024).
- [20] **C.H. Yuen** and C.D. Lin, Probing Vibronic Coherence in Charge Migration Using Strong Field Sequential Double Ionization, *Phys. Rev. A*, **109**, L011101 (2024) (**Letter**)
- [19] **C.H. Yuen** and C.D. Lin, Coherence from multiorbital tunneling ionization of molecules, *Phys. Rev. A*, **108**, 023123 (2023).
- [18] **C.H. Yuen**, P. Modak, Yan Song, Song-Feng Zhao, and C.D. Lin, Modeling the Sequential Dissociative Double Ionization of O_2 by Ultrashort Intense Infrared Laser Pulses, *Phys. Rev. A*, **107**, 013112 (2023).
- [17] **C.H. Yuen** and C.D. Lin, Density-matrix approach for sequential dissociative double ionization of molecules, *Phys. Rev. A*, **106**, 023120 (2022).
- [16] H. Liu, X. Jiang, **C.H. Yuen**[†], V. Kokoouline, and M.A. Ayouz, Formation of negative-ion resonance and dissociative attachment in collisions of NO_2 with electrons

J. Phys. B: At. Mol. Opt. Phys., 54, 185201 (2021).

([†] Corresponding author)

- [15] X. Jiang, J. Forer, **C.H. Yuen**, M.A. Ayouz, and V. Kokoouline, Theory of dissociative recombination of molecular ions with competing direct and indirect mechanisms applied to CH^+ , *Phys. Rev. A*, 104, 042801 (2021). (*Editor's suggestion*)
- [14] X. Li, H. Zheng, **C.H. Yuen**, J. Du, J. Chen, Z. Lin, and J. Ng, Quantitative study of conservative gradient force and non-conservative scattering force exerted on a spherical particle in optical tweezers, *Optics Express*, 29(16), 25377-25387 (2021).
- [13] **C.H. Yuen** and V. Kokoouline, Jahn-Teller Effect in Three-Body Recombination of Hydrogen Atoms, *Phys. Rev. A*, 101, 042709 (2020).
- [12] H. Liu, S. Fonseca dos Santos, **C.H. Yuen**, P. Cortona, V. Kokoouline, and M.A. Ayouz, Vibrational excitation of N_2O by an electron impact and the role of the Renner-Teller effect in the process, *Phys. Rev. A*, 102, 032808 (2020).
- [11] **C.H. Yuen**, D. Lapiere, F. Gatti, V. Kokoouline, and V.G. Tyuterev, The Role of Ozone Vibrational Resonances in the Isotope Exchange Reaction $^{16}\text{O}^{16}\text{O} + ^{18}\text{O} \rightarrow ^{18}\text{O}^{16}\text{O} + ^{16}\text{O}$: The Time-Dependent Picture, *J. Phys. Chem. A*, 123, 36, 7733-7743 (2019).
- [10] **C.H. Yuen**, N. Douguet, S. Fonseca dos Santos, A.E. Orel, and V. Kokoouline, Simplified Model to Treat the Electron Attachment of Complex Molecules: Application to H_2CN and the Quest for the CN^- Formation Mechanism, *Phys. Rev. A*, 99, 032701 (2019).
- [9] **C.H. Yuen**, M.A. Ayouz, N. Balucani, C. Ceccarelli, I.F. Schneider, and V. Kokoouline, Dissociative Recombination of CH_2NH_2^+ : a Crucial Link with Interstellar Methanimine and Titan Ammonia, *Mon. Notices Royal Astron. Soc.*, 484, 659-664 (2019).
- [8] X. Jiang, **C.H. Yuen**, P. Cortona, M.A. Ayouz, and V. Kokoouline, Cross Sections for Vibronic Excitation of CH^+ by Low-Energy Electron Impact, *Phys. Rev. A*, 100, 062711 (2019).
- [7] H. Liu, S. Fonseca dos Santos, **C.H. Yuen**, P. Cortona, V. Kokoouline, and M.A. Ayouz, Theoretical study of electron-induced vibrational excitation of NO_2 , *Plasma Sources Sci. Technol.*, 28, 105017 (2019).
- [6] Z.J. Mezei, K. Chakrabart, M.D. Epee Epee, O. Motapon, **C.H. Yuen**, M.A. Ayouz, N. Douget, S. Fonseca dos Santos, V. Kokoouline, and I.F. Schneider, Electron-Induced Excitation, Recombination and Dissociation of Molecular Ions Initiating the Formation of Complex Organic Molecules, *ACS Earth Space Chem.*, 3, 2376-2389 (2019).
- [5] M.A. Ayouz, **C.H. Yuen**, N. Balucani, C. Ceccarelli, I.F. Schneider, and V. Kokoouline, Dissociative Electron Recombination of NH_2CHOH^+ and Implications For Interstellar Formamide Abundance, *Mon. Notices Royal Astron. Soc.*, 490, 1325-1331 (2019).

- [4] **C.H. Yuen**, M.A. Ayouz, E. S. Endres, O. Lakhmanskaya, R. Wester, and V. Kokoouline, Quantum-Tunneling Isotope-Exchange Reaction $\text{H}_2 + \text{D}^- \rightarrow \text{HD} + \text{H}^-$, *Phys. Rev. A*, 97, 022705 (2018).
- [3] **C.H. Yuen** and V. Kokoouline, Theoretical Study of Resonances and Recombination in Low-Energy Collisions of Three Identical Bosons, *Eur. Phys. J. D*, 71 :19 (2017).
- [2] J. Du[†], **C.H. Yuen**[†], X. Li, K. Ding, G. Du, Z. Lin, C.T. Chan, and J. Ng, Tailoring Optical Gradient Force and Optical Scattering and Absorption Force, *Sci. Rep.*, 7:18042 (2017). ([†]co-first authors)
- [1] R. Roy, R. Shrestha, A. Green, S. Gupta, M. Li, S. Kotochigova, A. Petrov, and **C.H. Yuen**, Photoassociative Production of Ultracold Heteronuclear YbLi^* Molecules, *Phys. Rev. A*, 94, 033413 (2016).

Press Highlights

- 2024 **Attosecond Spectroscopy: Advancements in Ultrafast Molecular Dynamics**, Source: *AZoOptics*. Related publication: [22]
- 2022 **Bizarre Quantum Tunneling Observation Throws Out All the Rules**, Source: *Scientific American*. Related publication: [4]

Invited Talks

- 3/15/2024 **Probing vibronic coherence in charge migration in molecules using strong-field sequential double ionization**, *Attosecond Journal Club*, University of Central Florida, Orlando, Florida, USA
- 2/2/2023 **Imaging Molecular Dynamics: A theorist's perspective**, *Missouri University of Science and Technology*, Rolla, Missouri, USA
- 1/15/2018 **Theory of Three-Body Recombination**, *Laboratoire Aimé Cotton*, Orsay, France
- 10/27/2017 **Three-Body Collisions and Electron-Molecule Collisions in Interstellar Medium and Atmosphere**, *University of Le Havre*, Le Havre, France

Conferences and Workshops

- 6/1–6/5, 2026 57th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, Providence, RI:
 - Oral session: Enhanced Excited State Population and Coherence via Adiabatic Tunneling Ionization and Excitation (**C.H. Yuen**)
 - Poster session: Nonadiabatic theory for subcycle ionic dynamics in multielectron tunneling ionization (**C.H. Yuen**)
 - Poster session: Isomer Identification via Tunnel-Ionization-Weighted Laser-Induced Electron Diffraction (LIED) (L. Richard, N. Parrish, **C.H. Yuen**)
- 7/29–8/5, 2025 34th International Conference on Photonic, Electronic and Atomic Collisions, Sapporo, Japan :
 - Poster session: Anisotropy Induced Electronic Coherence Signal in Attosecond Transient Absorption Spectroscopy (**C.H. Yuen**, and C.D. Lin)

- 7/7–7/11, 10th International Conference on Attosecond Science and Technology, Lund, Sweden
2025 :
- Poster session: Anisotropy Induced Electronic Coherence Signal in Attosecond Transient Absorption Spectroscopy (**C.H. Yuen**, and C.D. Lin)
- 6/16–6/20, 56th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics,
2025 Portland, OR:
- Oral session: Anisotropy Induced Electronic Coherence Signal in Attosecond Transient Absorption Spectroscopy (**C.H. Yuen** and C.D. Lin)
- 6/9–6/13, 2024 Gordon Research Conference on Multiphoton Processes, Smithfield, RI :
- 2024
- Poster session: Probing electron motion in molecules using dissociative sequential double ionization and attosecond transient absorption spectroscopy (**C.H. Yuen** and C.D. Lin)
 - Poster session: Subpicometer and attosecond structural imaging using high-harmonic spectroscopy (Lixin He, **C. H. Yuen**, Yanqing He, Siqi Sun, E. Goetz, Anh-Thu Le, Yu Deng , Chengqing Xu , Pengfei Lan, Peixiang Lu, and C. D. Lin)
- 6/3–6/7, 55th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics,
2024 Dallas, TX :
- Oral session: Probing electron motion in molecules using strong-field sequential double ionization (**C.H. Yuen** and C.D. Lin)
- 9/18–9/20, 4th AttoChem Annual Meeting, Szeged, Hungary :
- 2023
- Poster session: Probing Vibronic Coherence in Charge Migration in Molecules Using Strong Field Sequential Double Ionization (**C.H. Yuen**, and C.D. Lin)
- 9/13–9/15, AttoChem Young Scientist Symposium 2023, Vienna, Austria :
- 2023
- Contributed talk: Probing Vibronic Coherence in Charge Migration in Molecules Using Strong Field Sequential Double Ionization (**C.H. Yuen**, and C.D. Lin)
- 7/10–7/14, 9th International Conference on Attosecond Science and Technology, Jeju Island,
2023 South Korea :
- Poster session: Probing Vibronic Coherence in Charge Migration in Molecules Using Strong Field Sequential Double Ionization (**C.H. Yuen**, and C.D. Lin)
- 7/11–7/15, 8th International Conference on Attosecond Science and Technology, Orlando, FL :
- 2022
- Poster session: Modeling molecular break-up processes under short and intense laser pulses (**C.H. Yuen**, P. Modak, and C.D. Lin)
- 5/29–6/2, 53th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics,
2022 Orlando, FL :
- Poster session: Modeling molecular break-up processes under short and intense laser pulses (**C.H. Yuen**, P. Modak, and C.D. Lin)
- 5/31–6/4, 52th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics,
2021 virtual :
- Oral session: Tracking the bond stretching of chiral molecules using photoelectron circular dichroism (**C.H. Yuen**, R. E. Goetz, J. Suarez, C. Koch, and L. Greenman)
- 6/1–6/5, 51th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics,
2020 virtual :
- Poster session: Jahn-Teller Effect in Three-Body Recombination of Hydrogen Atoms (**C.H. Yuen**, V. Kokoouline)

- 5/27–5/31, 50th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, 2019 Milwaukee, Wisconsin, USA:
- Poster session: Simplified Model to Treat the Electron Attachment of Complex Molecules (**C.H. Yuen**, N. Douguet, S. Fonseca dos Santos, A.E. Orel and V. Kokoouline), and Dissociative Recombination of CH_2NH_2^+ and $\text{NH}_2\text{CH}_2\text{O}^+$ Ions (V. Kokoouline, **C.H. Yuen**, M. A. Ayouz, N. Balucani, C. Ceccarelli, and I.F. Schneider)
- 4/9–4/12, 20th International Conference on Atomic Processes in Plasmas, Gaithersburg, Maryland, USA: 2019
- Poster session: Simplified Model to Treat the Dissociative Electron Attachment of Complex Molecules (**C.H. Yuen**, H. Liu, M. A. Ayouz, N. Douguet, S. Fonseca dos Santos, A.E. Orel and V. Kokoouline)
- 4/5, 2019 2019 UCF Graduate Research Forum, Orlando, Florida, USA:
- Poster session: Dissociative Recombination of CH_2NH_2^+ : Formation of Prebiotic Molecules Methanimine and Ammonia in the Interstellar Medium and Titan's Atmosphere (**C.H. Yuen**, M.A. Ayouz, N. Balucani, C. Ceccarelli, I.F. Schneider, and V. Kokoouline)(**Awarded**)
- 5/28–6/1, 49th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, 2018 Fort Lauderdale, Florida, USA:
- Oral session: Theoretical Study of the $\text{H}_2 + \text{D}^- \rightarrow \text{HD} + \text{H}^-$ Reaction at Low Energies (**C.H. Yuen**, M.A. Ayouz, E.S. Endres, O. Lakhmanskaya, R. Wester and V. Kokoouline)
 - Poster session: Dissociative Electron Attachment of Polyatomic Molecule at Low Collision Energies: Application to H_2CN (V. Kokoouline, **C.H. Yuen**, N. Douguet, S. Fonseca dos Santos, and A.E. Orel)
- 10/4–10/6, Spectroscopy and Dynamics of Ozone and Related Atmospheric Species, Reims, 2017 France (*Participation*)
- 9/25–10/20, Quantum Dynamics with the Multi-Configuration Time-Dependent Hartree 2017 (MCTDH) Method : Future and Perspectives, Orsay, France (*Workshop*)
- 6/5–6/9, 48th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, 2017 Sacramento, California, USA:
- Poster session: Theoretical Study of the $\text{H}_2 + \text{D}^- \rightarrow \text{HD} + \text{H}^-$ Reaction at Low Energies (**C.H. Yuen**, M. A. Ayouz and V. Kokoouline)
- 5/29–6/1, Spectroscopy, Dynamics and Applications of Cold Molecular Ions Workshop, Les 2017 Houches, France:
- Poster session: Theoretical Study of the $\text{H}_2 + \text{D}^- \rightarrow \text{HD} + \text{H}^-$ Reaction at Low Energies (**C.H. Yuen**, M. A. Ayouz and V. Kokoouline)
- 5/23–5/27, 47th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, 2016 Providence, Rhode Island, USA:
- Poster session: Theoretical Study of Resonances in Low-Energy Collisions of Three Identical Atoms (**C.H. Yuen** and V. Kokoouline)

- 7/6, 2014 17th Annual Conference of the Physical Society of Hong Kong, Kowloon Hong Kong:
- Oral session: Calculating and Manipulating Optical Gradient Force and Scattering Force (**C.H. Yuen**, J. Du, G. Du, Z. Lin, C. Chan and J. Ng)

Departmental Talks

- 10/25/2024 **From Imaging to Controlling Molecular Dynamics**, *Kennesaw State University*, Marietta, Georgia, USA
- 1/31/2024 **What does it take to observe electron motion in molecules?**, *Kansas State University*, Manhattan, Kansas, USA
- 3/29/2023 **Probing Charge Migration Using Sequential Double Ionization**, *Kansas State University*, Manhattan, Kansas, USA
- 10/12/2022 **Density Matrix Approach for Sequential Double Ionization of Molecules**, *Kansas State University*, Manhattan, Kansas, USA
- 3/23/2022 **Photoelectron Circular Dichroism Signal in Bond Breaking of Chiral Molecule CHFCIBr**, *Kansas State University*, Manhattan, Kansas, USA
- 9/2/2020 **Dissociative Electron Attachment to Polyatomic Molecules**, *Kansas State University*, Manhattan, Kansas, USA

Mentorship

- Fall 2026 – **Undergraduates Research**, *Kennesaw State University*
- Ethan Cup
- Fall 2025 – **Undergraduates Research**, *Kennesaw State University*
- Spring 2026 ○ Ya Gao (Now studying Master of Medical Physics at Virginia Commonwealth University)
- Spring 2025 – **Undergraduates Research**, *Kennesaw State University*
- Lily Richard (2025 REU program at Kansas State University)
- Spring 2025 – **High School Research Internship**, *Kennesaw State University*
- Summer 2025 ○ Nigel Parish, Wheel High School Magnet student
- Summer 2023 **Research Experiences for Undergraduates Program**, *Kansas State University*
- Jackson Diodati, University of Massachusetts, Amherst
 - Kathryn Chain, University of Nebraska at Omaha

Courses Taught

- Kennesaw State University PHYS 2211 Principles of Physics I, PHYS 3230 Optics
- University of Central Florida PHYS 2053C College Physics I (Studio Lab), PHYS 2049C General Physics Using Calculus II (Collaboration Technology Classroom)

Professional Service

Session Chair Nonadiabatic Molecular Dynamics, 57th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics

Referee Communications Physics, Physical Review A, Journal of Physics B: Atomic, Molecular and Optical Physics, Physical Chemistry Chemical Physics

Guest Editor, Laser-Driven Ultrafast Dynamics and Imaging in Atoms and Molecules, MDPI
12/2025-
10/2026 Photonics

Co-chair, Theoretical Atomic Molecular and Optical physics Community
2026 - 2028

University Service

1/1/2026 - Chair of the AI working group at Physics Department

8/1/2025 - Chair of the Physics Curriculum Committee
8/31/2026

Professional Affiliations

Member American Physical Society
IOP Trusted Reviewer
American Association of Colleges and Universities

Languages

Cantonese Native

English Fluent

Mandarin Fluent

French Un peu