

Nabilah A. Rontu Carlon

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Education **University of Colorado at Boulder**

Boulder, CO

Ph.D., Physical Chemistry

December, 2008

Dissertation title: *Atmospheric Chemistry and Fate of Highly-Fluorinated Carboxylic Acids and Alcohols*

Indiana University Purdue University at Indianapolis

Indianapolis, IN

B.S., Chemistry, ACS Certified

May, 2004

Teaching Experience *University of Colorado at Boulder*

Teaching Associate Professor, 2022-current

Instructor, 2013-2022

Lecturer, 2011-2013

- Courses: Introductory Chemistry (CHEM 1021), Environmental Chemistry I (CHEM 1011) and II (CHEM 1031), General Chemistry I (CHEM 1113) and II (CHEM 1133), General Chemistry I Lab (CHEM 1114), General Chemistry for Engineers-Lab (CHEN 1221), Physical Chemistry I (CHEM 4511) and II (CHEM 4531)
- Class sizes: 20 – 400 students per section
- Service to Department (2013 – present)
 - Interim Director of General Chemistry Labs (Spring 2021)
 - Worked with the CU Bookstore and Carolina Labs to facilitate the orders and resolve any issues that arose with the lab kits which were used in all of the lab courses in general chemistry
 - Supervised lab coordinators to resolve any course and department related issues
 - Orchestrated 2 mask fit test with EH&S for the department TAs and Research Faculty
 - Facilitated the clean-up and evaluation of lab equipment after the department experienced flooding in the building
 - Use of Peer Mentors to help retain chemistry majors (Fall 2020)
 - Hired and coached a team of five undergraduate upper division chemistry and biochemistry majors to mentor current students in chemistry
 - Hosted several sessions throughout the semester to connect mentees with mentors, discussed course preparation and exam taking strategies, as well as options in chemistry beyond the undergraduate experience
 - This project was funded by the ASSETT Faculty Fellows awards

- General Chemistry Curriculum Committee
 - Worked with the other committee members in selecting textbooks for use in CHEM 1021, CHEM 1113, and CHEM 1133
 - One of the original creators of the Self-Assessment Exam which was used as an indication for course placement; this later became the mandatory Diagnostic And Readiness Test (DART) which I also helped to write, distribute to different recitation sections, and used scores to place students in CHEM 1113 vs CHEM 1021
- Use of Learning Assistants (LAs) in CHEM 1113 and 1133:
 - Interview and hire LAs for use in both courses
 - Assign LAs to lecture sections, 3-4 recitation sections, and weekly TA/LA Recitation meetings
 - Run several meetings every week with TAs and LAs for approximately one hour where we discuss the recitation content and offer strategies for an effective recitation period with students
- TA Training Program – presenter and facilitator at several sessions
- Skill Building in Chemistry Workshops (Fall 2017)
 - offered a series of 5 workshops throughout the Fall 2017 semester with the goal of helping students in CHEM 1021, CHEM 1113, and CHEM 1133 with course preparation and test taking strategies for success in the chemistry program
- Service outside of Department
 - ACU Peer Mentoring – served as a peer mentor, 2022
 - Boulder Faculty Assembly – Academic Affairs Committee, 2019 – current
 - Co-Chair of Academic Affairs Committee, 2022-2023
 - American Chemical Society – Exam Writing Committee, 2019 - current
 - Honors Thesis Committee, 2019-2021
 - Baker Hall RAP Director Search Committee, 2018
 - Member of Health Professions Post-Baccalaureate Committee Letter Interview, 2018, 2019, 2020, 2023, 2024
- Classroom Technology
 - Zoom – used to pre-record lecture videos and facilitate small group work by utilizing breakout rooms
 - Canvas Studio and PlayPosit – used to upload pre-recorded lecture videos while teaching remotely
 - PowerPoint – lecture presentation
 - Lecture Capture – videos of lectures, used where available
 - Document Camera – used in conjunction with PowerPoint presentations
 - iClicker – instant student feedback on concepts taught
 - Piloted the use of mobile clickers in CHEM 1113 during the Fall 2018 semester to determine if they are a distraction in the classroom
 - Desire2Learn – online course management (lecture notes, handouts, grades)
 - Canvas – online course management (lecture notes, handouts, grades)
 - Online Homework Systems:
 - Achieve – CHEM 1113, CHEM 1133
 - Sapling Learning – CHEM 1021, CHEM 1113, CHEM 1133
 - Connect – CHEM 1113, CHEM 1133
 - WebAssign – CHEM 1133
 - ALEKS – used as assessment for course preparation in CHEM 1113

- Professional Development
 - Faculty Mentor for Learning by Design, 2023
 - Follow-Up Peer Mentoring Program, 2023
 - Learning by Design, 2022
 - Online Teaching Academy, 2021
 - This course was designed to help instructor develop and teach an online, remote, or hybrid course
 - Arts & Sciences Support of Education Through Technology (ASSETT): Critical Thinking Special Interest Group (2018)
 - ASSETT Faculty Fellow, 2019
 - Participate in a collaborative community of faculty to address teaching, learning, and challenges with technology within my department
 - The objective of this program is for me to provide leadership and guidance to my department to promote and prioritize the improvement of the undergraduate learning experience

Community College of Denver

Professor (Adjunct), 2010-2011

- Courses: General College Chemistry I & II with lab, Introduction to Chemistry I with lab
- Presented lectures, created homeworks, worksheets, quizzes and exams
- Assisted students in the laboratory and wrote laboratory protocols

University of Colorado at Boulder

Teaching Assistant, 2004-2005, 2008

- Assisted and directed students in the laboratory
- Gave recitation and arranged review sessions before exams
- Graded laboratory reports and quizzes for up to 60 students

Indiana University Purdue University at Indianapolis

Peer Lead Team Learning Group Leader, 2001-2003

- Actively engaged up to 16 peers in group discussions covering the fundamental concepts of general chemistry
- Helped strategize and construct problem solving techniques

Research
Experience

New Sky Energy, Inc.

Boulder, CO

Analytical Research Scientist, August 2010-July 2012

- Devised and conducted electrochemical reactions to maximize system efficiency and enhance product recovery
- Performed feasibility calculations and prepared reports for companies such as BP, Saint Gobain, and other private companies
- Developed protocols, assisted with writing patents

National Oceanic and Atmospheric Administration

Chemical Sciences Division, Boulder, CO

Postdoctoral Research Scientist, February 2009-June 2010

- UV Absorption and cavity ring-down spectroscopy

- Increase experimental productivity by troubleshooting and maintaining laboratory equipment to ensure optimum instrument performance (e.g. laser power output increased by ~170%, thereby increasing experimental sensitivity by ~30%)
- Design and modify experiments to meet project objectives and produce highly reliable results to meet deadlines

University of Colorado at Boulder
Department of Chemistry, Boulder, CO

Research Associate (graduate student), August 2004-December 2008

- Fourier-transform infra-red spectroscopy
 - Trained 3 of 5 group members as the recognized subject matter expert in gas-phase vibrational spectra of organic compounds, assisting in instrument theory and operation, data acquisition and analysis
 - Extensive knowledge of maintenance and operation of commercial infra-red spectrometers allowing for efficient data collection and analysis, turnaround time from experiments to publication ~ 5 months
- Langmuir-Blodgett Films
 - Expertise of the characterization of organic films at the air-water interface, with the capacity to identify errors early on and improvise solutions based on experimental limitations
 - Preliminary experimental knowledge of atmospheric processing and photochemistry of organic films at the air-water interface including several solutions to increase experimental efficiency
- Gas Chromatography-Mass Spectrometry
 - Proficient at data interpretation with strong ability to connect results to the broader experimental implications
 - Skilled at sample derivatization procedures and instrument operation

Awards and Honors

Online Teaching Academy Participant, 2021

ASSETT Faculty Fellows, 2019-2020

Marinus Smith Award Nominee – Spring 2019

University of Colorado, Honorary Captain, December 2013

University of Colorado Women's Basketball

Outstanding Student Paper Award, 2007

American Geophysical Union Joint Assembly Meeting

American Institute of Chemists Student Award, 2004

Indiana University Purdue University at Indianapolis

Publications

Carlson, N.; Fajardo, J.; Guha, S.; Habeeb, Z.; Johnson, S.; Kautz, J.; Krouse, I.; Lebeau, E.; Leontyev, A.; Porello, S.; Pribyl, J.; Ratcliff, B.; Shinn, D.; Sra, A.; Takahara, P.; Voska, K.; Wren, D.; General Chemistry, ACS Division of Chemical Education Examination, 2023

Papanastasiou, D. K.; **Rontu Carlon, N.**; Neuman, J. A.; Fleming, E. L.; Jackman, C. H.; Burkholder, J. B. "Revised UV Absorption Spectra, Ozone Depletion Potentials, and Global Warming Potentials for the Ozone Depleting Substances CF_2Br_2 , CF_2ClBr , and $\text{CF}_2\text{BrCF}_2\text{Br}$," *Geophysical Research Letters*, 2012, submitted.

Rontu Carlon, N.; Wise, M. *Environmental Chemistry II*, Kendal Hunt, 2012.

Kosmoski, J., Little, D.; **Rontu Carlon, N.**, "Sodium Sulfate Isolation", US Provisional Patent, May 3, 2011.

Rontu Carlon, N.; Papanastasiou, D. K.; Fleming, E.L.; Jackman, C.H.; Newman, J. A.; Burkholder, J. B. "UV Absorption Cross Sections of Nitrous Oxide (N_2O) and Carbon Tetrachloride (CCl_4) between 210 and 350 K and the Atmospheric Implications," *Atmospheric Chemistry and Physics*, 10, 6137-6149, 2010.

Vaida, V.; Feierabend, K. J.; **Rontu, N.**; Takahashi, K. "Sunlight-Initiated Photochemistry: Excited Vibrational States of Atmospheric Chromophores," *International Journal of Photoenergy*, 2008, 138091.

Rontu, N.; Vaida, V. "Surface Activity of Perfluorinated Compounds at the Air- Water Interface," *ACS Symposium Series: Atmospheric Aerosols: Characterization, Chemistry, Modeling, and Climate*, 2008, 65-77.

Rontu, N.; Vaida, V. "Vibrational Spectroscopy of Perfluorocarboxylic Acids from the Infrared to the Visible Regions," *Journal of Physical Chemistry B*, 2008, 112, 276-282.

Rontu, N.; Vaida, V. "Surface Partitioning and Stability of Pure and Mixed Films of 8-2 Fluorotelomer Alcohol at the Air-Water Interface," *Journal of Physical Chemistry C*, 2007, 111, 11612-11618.

Rontu, N.; Vaida, V. "Miscibility of Perfluorododecanoic Acid with Organic Acids at the Air-Water Interface," *Journal of Physical Chemistry C*, 2007, 111, 9975-9980.

Rontu, N.; Vaida, V. "Vibrational Spectroscopy of Perfluoropropionic Acid in the Region Between 1000-11000 cm^{-1} ," *Journal of Molecular Spectroscopy*, 2006, 237, 19-26.

Presentations TriO Student Support Services: Fall Gateway Retreat, CU Boulder 2022

Oral Presentation: Getting the Most out of Lectures and Networking with Professors

Miramontes Arts and Sciences Program Colloquim Series, CU Boulder, 2021

Oral presentation: From Bangladesh to Boulder – My Journey to Teaching

DuPont Company, Wilmington, DE; April, 2008

Oral Presentation: "Photoreactivity of Perfluorinated Compounds at the Air-Water Interface"

ACS 235th National Meeting and Exposition, New Orleans, LA; April, 2008

Poster presentation: "Photolysis of Perfluorinated Compounds at the Air-Water Interface"

ACS 234th National Meeting and Exposition, Boston, MA; August, 2007

Oral presentation: "Surface Partitioning and Stability of Mixed Films of Fluorinated Alcohols and Acids at the Air-Water Interface"

American Geophysical Union Joint Assembly, Acapulco, Mexico; May, 2007

Oral presentation: "Surface Partitioning and Stability of Mixed Films of Fluorinated Alcohols and Acids at the Air-Water Interface"

ACS 231st National Meeting and Exposition

Atlanta, GA; March, 2006

Poster presentation: "Vibrational Spectroscopy of Perfluorocarboxylic Acids"