

KENROY E. CRAWFORD

kencrawford@purdue.edu

Work Address

Purdue University, Department of Chemistry
560 Oval Drive Box 368 , West Lafayette, IN 47907
Telephone: (765) 494-7040 Fax: (765) 494-0359

Home Address

3163 Pheasant Run Apt 520
Lafayette, IN 47909
Telephone: (765) 532-5328

PROFESSIONAL OBJECTIVE:

Seeking a Research and Development position that requires strong analytical and technical skills.

HIGHLIGHTS OF QUALIFICATIONS:

- 5 years experience in use, maintenance, and repair of analytical instruments, including FT-ICR mass spectrometers, triple quadrupole mass spectrometers, and Nd:YAG lasers as well as LC/MS experience
- Strong background in physical organic and analytical chemistry, including organic gas-phase ion/molecule reactions, gas-phase peptide sequencing methods, and polymer and petroleum analysis methods
- Strong problem solving skills, independent, team leadership, creative
- Excellent written and oral communication skills

EDUCATION:

Doctorate of Philosophy, Analytical Chemistry, Expected May 2005

PURDUE UNIVERSITY, WEST LAFAYETTE, IN

Dissertation: Evaluation of laser-induced acoustic desorption (LIAD)/Fourier transform ion cyclotron resonance mass spectrometry (FT-ICR) in petroleum distillate analysis and peptide sequencing.

Advisor: Dr. Hilikka I. Kenttämäa

Bachelor of Science, Biochemistry(honors) and minor in Biology, May 2000

REGIS UNIVERSITY, DENVER, CO

Research title: The role of chromium(V) in the chromic acid oxidation of hydroxy acids.

Advisor: Dr. Surendra Mahapatro

Associate Degree in Science, Biology, Chemistry, Mathematics, May 1998

ST. JOHN COLLEGE, BELIZE CITY, BELIZE

RESEARCH EXPERIENCE:

PURDUE UNIVERSITY, WEST LAFAYETTE, IN

Research Assistant, August 2000 - present

- Operation, maintenance and troubleshooting of numerous analytical instruments that include a dual-cell Fourier transform ion cyclotron resonance (FT-ICR) mass spectrometer, Nd:YAG lasers and triple quadrupole (TSQ) mass spectrometer equipped with GC.
- Developed selective chemical ionization reactions in conjunction with laser induced acoustic desorption (LIAD) to solve analytical problems, e.g. analysis of components in petroleum distillates and polymer analysis, for various petrochemical companies.

- Developed new mass spectrometry methods based on LIAD that offers sequencing information on small peptides.
- Employed ab initio molecular orbital calculations to solve chemical problems e.g., to determine thermochemical properties, such as electron affinities, gas-phase acidities, and bond dissociation energies of biomolecules.
- Designed and enforced safety regulations and chemical waste disposal protocols as the group safety officer as well as identified and corrected problem areas in the lab workspace.
- Supervised the research and training of several graduate students.

REGIS UNIVERSITY, DENVER, CO

Undergraduate Research Assistant, August 1998 - 2000

- Developed chemical protocols to study the chemistry of chromium (V) in the oxidation of hydroxy acids utilizing various analytical instruments eg. IR spectrophotometer, fluorometer, HPLC, GC/MS, AA, EPR and uv/visible spectrophotometer.

TEACHING EXPERIENCE:

PURDUE UNIVERSITY, WEST LAFAYETTE, IN

Teaching Assistant, August 2000 - 2003

- Instructed undergraduate laboratories in General Chemistry, Organic Chemistry and Analytical Chemistry, gave lectures, supervised lab experiments, conducted help sessions and administered and graded lab reports, quizzes and exams.

PROFESSIONAL AFFILIATIONS:

American Society of Mass Spectrometry (ASMS)

Member since 2001

ACADEMIC AWARDS:

Government Scholarship

August 1996

Regis Natural Science Scholarship

August 1998

Regis Organic Chemistry Award

May 1999

William T. Miller Analytical Chemistry Award SJ.

May 2000

PUBLICATIONS:

Campbell, J.L.; Crawford, K.E.; Kenttämäa, H.I. Analysis of saturated hydrocarbons by using chemical ionization combined with laser-induced acoustic desorption Fourier transform ion cyclotron resonance mass spectrometry. *Anal Chem.* **2004**, 76, 959-963.

Campbell, J.L.; Fiddler, M.N.; Crawford, K.E.; Gqamana, P.P.; Kenttämäa, H.I. Analysis of polyethylene by using cyclopentadienyl cobalt chemical ionization combined with laser-induced acoustic desorption/Fourier transform ion cyclotron resonance mass spectrometry. *Submitted to Anal. Chem.*

Crawford, K.E.; Huang, H.; Petzold, C.J.; Kenttämäa, H.I. Experimental and computational determination of the homolytic bond dissociation energy of the O-H bond in the side chain of tyrosine. *In preparation*

Huang, H.; Crawford, K.E.; Petzold, C.J.; Kenttämäa, H.I. Experimental and computational determination of the homolytic bond dissociation energy of the S-H bond in the side chain of cysteine. *In preparation*

Crawford, K.E.; Petzold, C.J.; Liu, J.; Price, J.M.; Stumpf, C.L.; Ramirez-Arizmendi, L.E.; Gilbert, J.; Kenttämäa, H.I. Intrinsic chemical properties of nucleobase radical cations. *In preparation.*

Crawford, K.E.; Campbell, J.L.; Kenttämäa, H. I. Cyclopentadienylcobalt (CpCo⁺) chemical ionization of

neutral peptides evaporated into a mass spectrometer by laser-induced acoustic desorption. *In preparation.*

Crawford, K. E.; Campbell, J.L.; Fiddler, M.N.; Gorbaty, M.L.; Kenttämää, H.I. Evaluation of laser-induced acoustic desorption (LIAD)/Fourier transform ion cyclotron resonance mass spectrometry (FT-ICR) for petroleum distillate analysis. *In preparation.*

PRESENTATIONS:

Campbell, J.L.; Fiddler, M.N.; Crawford, K.E.; Kenttämää, H.I. Analysis of polyethylene polymers by using chemical ionization combined with laser-induced acoustic desorption Fourier transform ion cyclotron resonance mass spectrometry. *Oral presentation at the 52nd Annual Meeting of the American Society for Mass Spectrometry Conference on Mass Spectrometry and Allied Topics, Nashville, TN, June 2004.*

Crawford, K. E.; Campbell, J.L.; Fiddler, M.N.; Gorbaty, M.L.; Kenttämää, H.I. Evaluation of laser-induced acoustic desorption (LIAD)/Fourier transform ion cyclotron resonance mass spectrometry (FT-ICR) for petroleum distillate analysis. *Poster presentation at the 52nd Annual Meeting of the American Society for Mass Spectrometry Conference on Mass Spectrometry and Allied Topics, Nashville, TN, June 2004.*

Fiddler, M.N.; Campbell, J.L.; Crawford, K.E.; Kenttämää, H.I. Characterizing the reactivity of cyclopentadienyl cobalt radical cation (CpCo⁺) toward aliphatic and aromatic hydrocarbon by using FT/ICR. *Poster presentation at the 52nd Annual Meeting of the American Society for Mass Spectrometry Conference on Mass Spectrometry and Allied Topics, Nashville, TN, June 2004.*

Campbell, J.L.; Crawford, K.E.; Kenttämää, H.I. A novel method for the analysis of nonpolar hydrocarbons by using chemical ionization combined with laser-induced acoustic desorption Fourier transform ion cyclotron resonance mass spectrometry. *Oral presentation at the 51st Annual Meeting of the American Society for Mass Spectrometry Conference on Mass Spectrometry and Allied Topics, Montreal, PQ, June 2003.*

Crawford, K.E.; Campbell, J.L.; Kenttämää, H. I. Cyclopentadienylcobalt (CpCo⁺) chemical ionization of neutral peptides evaporated into a mass spectrometer by laser-induced acoustic desorption. *Poster presentation at the 51st Annual Meeting of the American Society for Mass Spectrometry Conference on Mass Spectrometry and Allied Topics, Montreal, PQ, June 2003.*

Crawford, K.E.; Huang, H.; Petzold, C.J.; Kenttämää, H.I. Bond dissociation energies of S-H and O-H in the side chain of amino acid residue. *Poster presentation at the 50th Annual American Society for Mass Spectrometry Conference on Mass Spectrometry and Allied Topics, Orlando, FL, June 2002.*

Liu, J.; Crawford, K.E.; Gilbert, J.; Price, J.M.; Petzold, C.J.; Kenttämää, H.I. Intrinsic chemical properties of nucleobase radical cations. *Poster presentation at the 49th Annual American Society for Mass Spectrometry Conference on Mass Spectrometry and Allied Topics, Chicago, IL, June 2001.*

Crawford, K.E.; Urbina, J.; Pinsinski, D. L.; Mahapatro, S. N. On the role of chromium(V) in the chromic acid oxidation of hydroxy acids. *Poster Presentation at the 219th ACS National Meeting, San Francisco, CA, March 2000.*

Prof. Hilikka I. Kenttämää
Department of Chemistry
Purdue University
West Lafayette, IN, 47906
(765) 494-0882
hilikka@purdue.edu

Prof. Fred E. Regnier
Department of Chemistry
Purdue University
West Lafayette, IN, 47906
(765) 494-3878
fregnier@purdue.edu

Prof. Stephen F. Cartier
Department of Chemistry
Regis University
Denver, CO, 80221
(303) 458-4251
scartier@regis.edu