

## Curriculum Vitae

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### CURRENT ACADEMIC POSITIONS

**Director, Electronics Design Facility and Director, Nano-Device Characterization Lab, Department of Chemistry, University of North Carolina at Chapel Hill** (2000 – present). Responsible for directing a team of consisting of one engineer and two technicians in the design of novel analytical instrumentation and software. Instrumentation is used in diverse research areas such as electrochemistry, electrophysiology, nanotechnology, environmental monitoring, nuclear magnetic resonance, mass spectrometry, ophthalmology, pharmaceuticals, and laser aerosol particle analysis. A variety of this instrumentation is sold to customers around the world. Recent designs include RF systems for miniature mass spectrometers and electronic systems for direct detection of DNA in nano-fabricated devices. Teach students basic electronics through one-on-one interactions and through Chem 742 and 742L. Also responsible for managing the business aspects of the facility. Initiated collaborations with UNC spin-off companies in the Carolina KickStart program that have resulted in prototyping and pre-commercial production of medical instrumentation.

**Faculty Member, Center for Biomodular Multi-Scale Systems for Precision Medicine (CBM<sup>2</sup>), University of North Carolina at Chapel Hill** (2014 – present). NIH-funded center focused on the design of instrumentation and tools for analyzing circulating biomarkers. Technologies enabled through the development of low noise electronics and nano-scale interconnects. R&D efforts have resulted in additional commercial support by Roche Diagnostics.

### OTHER POSITIONS CURRENTLY HELD

**Founding Member, Digital NanoGenetics (DNG), LLC, Lawrence, KS** (2017 – present). DNG is an early stage startup involved in developing automated, portable, single biomolecule sequencing technology, based on exonuclease time-of-flight methodologies.

**President and Director of Engineering, M2 Innovations, Inc., Durham** (2006 – present). M2 provides instrumentation design and consulting services to corporations and institutions involved in electrochemistry, nuclear medicine, and mass spectrometry. Major clients include The National Center for Scientific Research (CNRS – France), Ohmx Corporation, and Duke University Medical Center. M2 also designs and supplies evaluation systems for the OneNet wireless protocol developed by Threshold Corporation.

**President and Chief Engineer, VoChor, Inc., Durham, NC** (1993 – present). VoChor is a digital audio recording and professional audio equipment design company. Corporate and Institutional clients include Mopac Media, Inc., Hinshaw Music, Inc., E.C. Schirmer, Inc. (Arsis Recordings), Calcante Recordings, NCCU, UNC, Duke University, as well as many musical performance groups in the Triangle area. VoChor maintains a full mixdown facility in the Westgate Office Park in South Durham. VoChor has produced several commercially distributed CDs and designs and manufactures audio products such as the PortaComp portable preamp/limiter/compressor.

### PREVIOUS POSITIONS

**Vice-President and Director of Engineering, Tracera, Inc., Durham, NC** (2000 –2012). Led a team of engineers and scientists in the design, development, and manufacturing of automated radiopharmaceutical synthesis systems for use in cancer imaging. Worldwide customers included Peter MacCallum Cancer Centre, Melbourne, AUS, Sir Charles Gairdner Hospital, Perth, AUS, Wake Forest Baptist Medical Center, Duke University Medical Center, Indiana University-Purdue University Indianapolis, among others. Co-authored grant proposals resulting in over \$2M in STTR, SBIR, and matching awards from the NCI division of NIH and the Indiana Economic Development

Corporation (IEDC) to develop systems for production of a variety of F-18 labeled radiopharmaceutical compounds. Oversight of QA systems development including IQ/OQ procedures, engineering design procedures, and in-process procedures.

**Electrical Engineer/Associate in Research/Radiation Safety Manager, Duke University Medical Center, Department of Radiology, Division of Nuclear Medicine, Positron Emission Tomography (PET) Facility**, Durham, NC (1992 - 2000). Engineering responsibilities included analog and microprocessor-controlled instrumentation research and design, sensor and radiation detector research, design of laboratory automation and robotic systems, cyclotron target and target support system design, target behavior modeling, and cyclotron maintenance program development. Administrative responsibilities included directing operations of the PET facility radiopharmacy, directing the submission of the Duke Abbreviated New Drug Application (ANDA) for various PET radiopharmaceuticals to the FDA, membership on the Medical Center Cyclotron Committee, serving as the facility radiation safety manager, and training of nuclear medicine technologists in radiopharmaceutical techniques. These efforts resulted in reduced PET facility down-time and improved laboratory efficiency, including a five-fold improvement in process variability for radiopharmaceutical production.

**Consultant, University of North Carolina at Chapel Hill and Triangle Universities Nuclear Laboratory**, Durham, NC (1998 - 2000). Designed high speed analog fiber optic transmitters and receivers, novel DC baseline restoration circuitry, and high current driver circuitry for relaying microsecond-wide pulses. The units are used to measure gamma radiation energy and count rate with semiconductor radiation detectors; therefore pulse amplitude, shape, and phase linearity was extremely important.

**Consultant, VI Engineering, Inc.**, Durham, NC (1998). Provided applications engineering, system design, marketing strategy, and signal conditioning hardware for bio-medical and pharmaceutical industry instrument and control applications. Designed Virtual Instrument (VI) based demos and gave seminars to customers such as Glaxo-Wellcome.

**Collaborator, DuPont Superconductivity**, Wilmington, DE and MemTestCorp, Davidson, NC (1996-1997). Designed RF matching networks for novel high temperature superconducting coils for use in medical Magnetic Resonance Imaging (MRI) scanners.

**Consultant, Litton Data Systems**, Pascagoula, MS (1995 - 1996). Consulting services consisted of test procedure development, test fixture design, and specification review for the Integrated Communications Terminal (ICT) for use on the LHD5 amphibious assault ship. This terminal directs secure and plain ISDN, radio, and intercom communications for internal and external use on the ship. The test fixture consisted of device simulators enabling measurement of distortion, gain, noise, frequency response, dynamic range, and crosstalk.

**Consultant, Duke University Free Electron Laser Lab**, Durham, NC (1992). Assisted with the design of effluent air radioactive contamination monitors for the newly constructed facility. Performed calibration tests using short-lived radioactive tracers and models of the actual duct system. The air monitoring system was required in order to meet North Carolina radiation safety regulations.

**Vice-President and Director of Engineering, Biosystems Technologies, Inc.**, Durham, NC (1988 - 1992) formerly Phytokinetics Division, PhytoResource Research, Inc., (1985-1988) and Visiting Senior Engineer, Department of Botany, Duke University, Durham, NC (1988 - 1992). The company performed contract research for DOE, NASA, USDA, NSF, EPRI, and other commercial and academic institutions in the area of biotechnology. During this time, Biosystems employed 6 professionals and leased office and laboratory facilities at Duke University. Engineering responsibilities included design of electronic instrumentation for nuclear and plant physiological measurements, development of radioisotope production, storage, transport, and control systems, and state-of-the-art radiation detector development for C-11 radioactive tracer studies in plants. Conducted mathematical modeling of plant systems using compartmental analysis, transfer function analysis, and time dependent techniques. Led efforts to commercialize the radiotracer processes for agricultural crop plant improvement through activities including marketing research, research and business proposal writing, accounts management, and by serving as the focal

point for business/scientific liaison. Also led efforts toward a successful research partnership with Rhone-Poulenc Ag Co. and led corporate development efforts with a professional business brokerage and investment firm. Co-authored business and grant proposals that resulted in over \$1.25M in company revenue.

**Consultant, Duke University Medical Center, Department of Radiology, Division of Nuclear Medicine, Positron Emission Tomography Facility**, Durham, NC (1988 - 1992). Design of microprocessor-based instruments and controllers, design of radiogas delivery systems, and automation of radiopharmaceutical production.

**Consultant, Coherent Technologies, Inc.**, Missouri City, TX (1990 - 1993). Performed research and evaluation of new sensor technologies, development of sensor testing protocols and data acquisition methods, system specification, and vendor selection for temperature sensing systems for use on coal gassifier vessels used in the oil industry.

**Electrical Engineer/Procurement Quality Engineer, Quality Assurance Department, Digital Systems Division, Texas Instruments, Inc.**, College Station, TX (1982 - 1985). Responsible for qualification of all international suppliers for the Digital Systems Division. Specific responsibilities included supplier site review, evaluation, qualification, and certification, as well as quality contract negotiations. Other responsibilities included specification review during the product design phase, and test development and implementation for purchased parts, development of statistical quality control methods, and implementation of in-house or supplier corrective actions. Management activities included direct supervision of one technician, responsibility for technical accuracy of seven incoming quality control inspectors, cost center capital equipment forecasting, and management of several quality improvement teams. These activities resulted in significant reductions in rejected material both during incoming test and on the manufacturing lines.

**Consulting Engineer, Sector Research, Inc.**, Huntsville, AL (1982). Assisted in redesign of point-of-sale terminal.

**Research Technician, Biosystems Research Division, Department of Industrial Engineering, Texas A&M University**, College Station, TX (1977 - 1981). Conducted individual research on electrical properties of intact, living plants supported as a part of National Science Foundation grant #DEB77-14406. Provided technical support for C-11 biological tracer studies conducted at Texas A&M University and Duke University.

**Technician, Department of Physics, Texas A&M University**, College Station, TX (1980). Designed and repaired research instrumentation for faculty members.

## **EDUCATION**

B.S. Electrical Engineering, Texas A&M University, 1981

## **BOARDS AND COUNCILS**

Member, Board of Directors, Threshold Corporation, Petaluma, CA.  
Invited participant, The Glaucoma Foundation 2006 Think Tank, New York, NY.  
Presider/Organizer, Instrumentation Design Section, PITTCON 2004  
Reviewer, HFSP Journal, Frontiers of Research in the Life Sciences  
Reviewer, American Institute of Physics, Review of Scientific Instruments

## **AWARDS AND APPOINTMENTS**

Texas Instruments Quality Award for Excellence and inductee to the Quality Hall of Fame.  
Elected to Senior Member grade, IEEE.  
Who's Who in Science and Engineering, 1994/1995.  
Men of Achievement, Seventeenth Edition, International Biographical Centre, Cambridge, England, 1996.  
Outstanding Young Men of America, 1981.  
Texas A&M University Memorial Student Center Outstanding Committee Member Award.  
Lifetime Fellow, American Junior Academy of Science (AAAS)

## TECHNICAL SKILLS

Programming Languages: LabView, BASIC, C, Python, FORTRAN, Assembly  
Analysis and Electronics: SPICE variants (Multisim, TI Tina, LTSpice, etc.), MathCAD, Statgraphics, TRIM  
Communications Protocols: I<sup>2</sup>C, SPI, USB, RS-232, RS-485, HPIB  
Specialized Instrumentation: Real-time spectrum analysis, network and impedance analysis (S-parameters, R, L, C, X, Z), USB protocol analysis, dynamic signal analysis, lock-in amplification, multichannel analyzer/scalar, NIM devices

## ADDITIONAL COURSE WORK

Radiation Safety Course for Radiation Safety Officers (Duke University).  
Statistical Quality Control (Texas Instruments).  
Management and Supervision (Texas Instruments).  
Juran on Quality Improvement (Texas Instruments).  
National Science Foundation summer program on biophysics and biochemistry, Northeast Louisiana University.

## INTERESTS

Choral music, amateur radio, audio electronics

## PUBLICATIONS AND PATENTS LIST

### PATENTS

J.A. Reimund, **C.J. McKinney**, and J.D. Melton, "Magnetic Tire Monitor System", U.S. Patent #4,570,152 assigned to Hyperion Corporation (1986).

**C.J. McKinney** and R. Musser, "Reciprocating Evaporator", U.S. Patent #8,034,214.

Steven Soper, Francis Barany, George Grills, Robin Mccarley, **Collin McKinney**, Dorel Moldovan, Michael Murphy, Dimitris Nikitopoulos, Sunggook Park, and Elizabeth Podlaha-Murphy, "Biomolecular Processing Platform and Uses Thereof", U.S. Patent #9,909,173.

### PROVISIONAL AND PENDING PATENTS

Steven Soper, Francis Barany, Sunggook Park, Michael Murphy, **Collin McKinney**, John William Efcavitch, Mateusz Hupert, "Universal Molecular Processor for Precision Medicine", PCT/15/560,028 (2017).

### PUBLICATIONS (Refereed)

Rusinek, Cory A.; Guo, Yue; Rechenberg, Robert; Becker, Michael F.; Purcell, Erin; Verber, Matthew; **McKinney, Collin**; and Li, Wen. All-Diamond Microfiber Electrodes for Neurochemical Analysis. Journal of The Electrochemical Society, 165 (12) G1-G6 (2018)

Kirkpatrick, D.C.; **McKinney, C.J.**; Manis, P.B.; Wightman, R.M. Expanding neurochemical investigations with multi-modal recording: simultaneous fast-scan cyclic voltammetry, iontophoresis, and patch clamp measurements. Analyst, 2016;141(16):4902-4911.

- Disney, Anita A.; **McKinney, Collin J.**; Grissom, L.; Lu, Xuekun; Reynolds, John H. A multi-site array for combined local electrochemistry and electrophysiology in the non-human primate brain. *Journal of Neuroscience Methods* 07/2015; 255.
- Bucher, Elizabeth; Brooks, Kenneth; Verber, Matthew; Keithley, Richard; Owesson-White, Catarina; Carroll, Susan; Takmakov, Pavel; **McKinney, Collin**; Wightman, Robert A. Flexible Software Platform for Fast-Scan Cyclic Voltammetry Data Acquisition and Analysis. *Analytical Chemistry*, 2013; 85(21):10344-53.
- Takmakov, Pavel; **McKinney, Collin J.**; Carelli, Regina M.; Wightman, R. Mark. Instrumentation for fast-scan cyclic voltammetry combined with electrophysiology for behavioral experiments in freely moving animals *Rev. Sci. Instrum.* 82, 074302 (2011).
- Mysak, Erin R.; Dessiaterik, Yury N.; **McKinney, C. J.**; Miller, Roger E.; Baer, Tomas. Design of a timing circuit for random laser triggering on aerosol particles. *Review of Scientific Instruments*, 77(1) Jan 2006.
- Song, Y.; Jimenez, V.; **McKinney, C.J.**; Donkers, R.; and Murray, R.W. Estimation of Size for 1-2 nm Nanoparticles Using an HPLC Electrochemical Detector of Double Layer Charging. *Analytical Chemistry*, 75(19), pp. 5088-5096, 2003.
- McKinney, C.J.** and Karwowski, H.J. Analog fiber optic transmission link. *Review of Scientific Instruments*, 72(9), pp. 3687-3690, 2001.
- McKinney, C.J.** and Nader, M.W. A Peltier Thermal Cycling Unit for Radiopharmaceutical Synthesis. *Applied Radiation and Isotopes*, 54(1) pp. 97-100 (2001).
- McKinney, C.J.**, MacCormac, E.R., and Welsh-Bohmer, K. Hardware and Software for Tachistoscropy: How to Make Accurate Measurements on any PC. *Behavior Research Methods, Instruments and Computers*. 31(1), pp. 129-136, 1999.
- MacCormac, E.R. and **McKinney, C.J.** Chaos: A Mathematics for Heart and Mind. *North Carolina Medical Journal*. May/June 1998, 59(3).
- Y. Fares, J.D. Goeschl, C.E. Magnuson, **C.J. McKinney**, R.L. Musser, and B.R. Strain. Positron Emitters for In Vivo Plant Studies. *Application of Accelerators in Research and Industry*. Edited by J.L. Duggan and I.L. Morgan. AIP Press, NY, pp. 463-467, 1997.
- C.J. McKinney**, B.W. Wieland, and R.E. Coleman. Radiation-hard Non-contact Fluid Sensor for Radionuclide Production Applications. *Applied Radiation and Isotopes*, 46(10), pp. 1061-1064, 1995.
- C.J. McKinney**. PIN photodiode-based miniature gamma radiation detector for multiple applications including positron emission tomography radioisotopes. *Review of Scientific Instruments*, 65(4): 861(1994).
- R. L. Musser, J.D. Goeschl, **C.J. McKinney**, C.E. Magnuson, Y. Fares, and B.R. Strain. Plant Physiology Studies Using Short-Lived Radioisotope Labeling. In press, American Chemical Society, Proceedings of the Symposium on Applications of Nuclear Chemistry, 1994.
- Y. Fares, J.D. Goeschl, C.E. Magnuson, **C.J. McKinney**, R.L. Musser, and B.R. Strain. In Vivo Tracer Kinetics of Plant Function Using Positron Emission Technology. *Nuclear Instruments and Methods in Physics Research* 1310-1315 (1989).
- C.J. McKinney**, Y. Fares, R.L. Musser, J.D. Goeschl, C.E. Magnuson, and J.L. Need. An <sup>11</sup>C<sub>2</sub>O<sub>2</sub> Transportation System. *Review of Scientific Instruments*, 60(4): 783 (1989).

**C.J. McKinney**, Y. Fares, C.E. Magnuson, C.H. Jaeger, J.D. Goeschl, and J.L. Need. An Automatic System for the Control of Batch Produced  $^{11}\text{CO}_2$  for Continuous Labelling Experiments. *Review of Scientific Instruments*, 59(3): 467 (1988).

#### INVITED PRESENTATIONS

**C.J. McKinney**, Instrumentation for Neurochemical Analysis with BDD Electrodes, Boron Doped Diamond Workshop, Fraunhofer USA and Michigan State University, July 10, 2018

**C.J. McKinney**, Advice to UNC Inventors, Carolina Innovations Seminar, UNC Office of Technology Development, April 2, 2009,

**C.J. McKinney**, Carolina Innovations Seminar, UNC Office of Technology Development, April, 2007, Discussion Panel Member

**C.J. McKinney**, Electronics Design Support at UNC, Carolina Innovations Seminar, UNC Office of Technology Development, April 14, 2005,

#### PAPERS AND ABSTRACTS

**C.J. McKinney**, M.D. Verber, R.M. Wightman. Instrumentation for Fast-Scan Cyclic Voltammetry in Freely Moving Animals. 25<sup>th</sup> International Neuroscience and Biological Psychiatry Conference "Stress and Behavior", May 16-19, 2018, St. Petersburg, Russia.

Elizabeth S. Bucher, Richard B. Keithley, Pavel Takmakov, **Collin McKinney**, Matthew Verber, Kenneth Brooks, Catarina Owesson-White, Susan Carroll, R. Mark Wightman. HDCV: An Open Source Software Suite for Fast-Scan Cyclic Voltammetry Data Collection and Analysis. PITTCON 2012, March 11-15, Orlando, FL.

Derek W. Wolfe, Dmitriy Chernookiy, Tina Stacy, Matthew Verber, **Collin McKinney**, J. Michael Ramsey. RF amplifier optimization for improved resolution in microscale cylindrical ion traps. ASMS 59th Conference Proceedings, 2011.

Travis M. Falconer, Derek W. Wolfe, **Collin J. McKinney**, Wit Wisniewski, M. Bonner Denton, J. Michael Ramsey. High pressure ion detection for miniaturized mass spectrometers. ASMS 58th Conference Proceedings, 2010.

Mark Ridgeway, Philip Remes, **Collin McKinney**, Gary L. Glish. Radio frequency power supply for the production of high amplitude asymmetric waveforms. 56<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Denver, CO, June 2008.

Rachid Nazih, Qi-Huang Zheng, Bruce H. Mock, Pradeep K. Garg, **Collin J. McKinney**, Robert L. Musser, and Timothy R. DeGrado. Automated Synthesis of 16- $^{18}\text{F}$ Fluoro-4-Thia-Palmitate (FTP) and  $^{18}\text{F}$ FLT Using a new general radiochemistry module. Proceedings of the 17th International Symposium on Radiopharmaceutical Sciences, Aachen, Germany, 2007.

Chris Calloway, Sara Haines, **Collin McKinney**, Luke Stearns, Bill Brown, Harvey Seim, Jeff Jefferson, Paul Work, William Johns, Cliff Merz, and Chad Lembke. Telemetry for a Coastal Ocean Observing System - Part 2, Technical Workshop on Applications of Iridium Telecommunications to Oceanographic and Polar Research, April 2006.

L. M. Morandeau, T. R. DeGrado, **C. J. McKinney**, S. Y. Chan, D. P. Meyrick, C.G. Jones, R.I. Price, N. Lenzo. Automated Synthesis of  $^{18}\text{F}$  Fluoromethylcholine (FCH). ISRC, July 24-28, 2005 Iowa City, Iowa.

Chris Calloway, Sara Haines, **Collin McKinney**, Luke Stearns, Harvey Seim. Telemetry for a Coastal Ocean Observing System: *Preliminary Results using the Iridium System*. Technical Workshop on Applications of Iridium

Telecommunications to Oceanographic and Polar Research, University of Washington, Applied Physics Laboratory, 19-20 May 2004 Seattle, WA, U.S.A.

**Collin J. McKinney**, John Peterson, Michael Heien, Regina M. Carelli, R. Mark Wightman. Development of Instrumentation for Combined Fast-Scan Cyclic Voltammetry and Neurophysiological Measurements in Freely Moving Animals. PITTCON 2004, March 7-12, Chicago, IL.

Michael L. Heien, Paul A. Garris, **Collin McKinney**, Regina M. Carelli, R. Mark Wightman. Quasi-simultaneous Electrochemical and Electrophysiological Measurements at the Same Sensor: Probing the Chemical Environment and Bioelectrical Activity of the Brain. Neuroscience 2002, November 2-7, Orlando, FL.

Michael L. Heien, Paul A. Garris, John Peterson, **Collin McKinney**, Paul E. Phillips, Andrew Seipel, Regina M. Carelli, R. Mark Wightman, Mitchell F. Roitman. Electrochemical and Electrophysiological Measurements at the Same Sensor: Measuring Dopamine and its Effects in a Freely Moving Rat. PITTCON 2003, March 9-14, Orlando, FL.

**McKinney, C.J.** and Nader, M.W., A Peltier Thermal Cycling Unit for Rapid Radiopharmaceutical Synthesis. Proceedings of the 13<sup>th</sup> International Symposium on Radiopharmaceutical Chemistry, St. Louis, MO, June, 1999.

**McKinney, C.J.**, Dailey, M.F. and Wieland, B.W. On-Line Measurement of the Evolution of Radiolysis Gas from an <sup>18</sup>F Target. Proceedings of the Eighth Workshop on Targetry and Target Chemistry, St. Louis, MO, June, 1999.

**McKinney, C.J.** In-Line Conductivity Sensor Measurement of Irradiated Target Water During <sup>18</sup>F Production. Proceedings of the Eighth Workshop on Targetry and Target Chemistry, St. Louis, MO, June, 1999.

Welsh-Bohmer, K.A., MacCormac E.R., **McKinney, C.J.**, Turkington, T.G., Cullen, C.M., and Coleman, R.E. Working Memory and Secondary Memory Deficits in Alzheimer's Disease: A PET Activation Study. International Neuropsychological Society, Twenty-Sixth Annual Meeting, Honolulu, Hawaii, Feb 4-7, 1998.

Degrado, T.R., Brizel, D.M., **McKinney, C.J.**, Coleman, R.E. "Estimation of Perfusion and Oxygen Utilization Rate in Tumors with PET - A Technique without Arterial Blood-Sampling", The Journal of Nuclear Medicine, 39(5), 1998, pp. 417-417.

Wieland, B.W., **McKinney, C.J.**, and Coleman, R.E. A Tandem Target System Using <sup>16</sup>O(p,pn)<sup>15</sup>O and <sup>16</sup>O(p, $\alpha$ )<sup>13</sup>N on Natural Water. Proceedings of the Sixth Workshop on Targetry and Target Chemistry, Vancouver, BC, August, 1995.

Wieland, B.W., **McKinney, C.J.**, Dailey, M.F., Vaidyanathan, G., Larson, R.H., and Zalutsky, M.R. Optimizing TeO<sub>2</sub> Targetry for the <sup>125</sup>Te(p,2n)<sup>124</sup>I Reaction. Proceedings of the Sixth Workshop on Targetry and Target Chemistry, Vancouver, BC, August, 1995.

Wieland, B.W., Hendry, G.O., **McKinney, C.J.**, Dailey, M.F., Larson, R.H., and Zalutsky, M.R. Innovative Internal Target System for <sup>209</sup>Bi( $\alpha$ ,2n)<sup>211</sup>At. Proceedings of the Sixth Workshop on Targetry and Target Chemistry, Vancouver, BC, August, 1995.

Wieland, B.W., **McKinney, C.J.**, Dailey, M.F. and Coleman, R.E. Current Status of Target Systems at the Duke University Medical Center CS-30 Cyclotron Facility. Proceedings of the Sixth Workshop on Targetry and Target Chemistry, Vancouver, BC, August, 1995.

Wieland, B.W., **McKinney, C.J.**, and Dailey, M.F. Utilization of the CS-30 Cyclotron at the Duke University Medical Center. Proceedings of the Fifth Workshop on Targetry and Target Chemistry, September, 1993. Brookhaven National Laboratory publication Number BNL-61149, p. 378 (1995).

- C.J. McKinney** and J.L. Need, An Automated Beam Shutter Control System. The 11th International Conference on the Application of Accelerators in Research and Industry, Denton, TX, November, 1990.
- J. Goeschl, **C. McKinney**, Y. Fares, C. Magnuson, and R. Musser. Rapid Effects of CO<sub>2</sub> on Photosynthate Partitioning in Leaves. *Plant Physiology*, 86(4): 100 (1988).
- C. Magnuson, R. Musser, Y. Fares, **C. McKinney**, and J. Goeschl. Diurnal Changes in Photosynthate Partitioning". *Plant Physiology*, 86(4): 100 (1988).
- C.J. McKinney**, H. Karwowski, Y. Fares, C. Magnuson, J. Goeschl, and R. Musser. "The State of the Art in Radiation Detector Technology for Use with Short Lived Isotope Tracer Kinetic Studies in Plants". Submitted to the Department of Energy, Office of Energy Research, Carbon Dioxide Research Division (1988).
- J.D. Goeschl, H.W. Scheld, C.E. Magnuson, C.H. Jaeger, **C.J. McKinney**, and Y. Fares. An Apparatus for Optimizing Atmospheres for Space Life Support Life Systems. American Society for Gravitational and Space Biology, Charlottesville, VA, October 1-3, 1986.
- J.D. Goeschl, C.E. Magnuson, Y. Fares, C.H. Jaeger, **C.J. McKinney**, and H. Scheld. Possible Roles of Long Distance Transport in Assimilation and Allocation of Carbon in Maize. Regulation of Carbon and Nitrogen Reduction and Utilization in Maize: proceedings of the first annual Penn State Symposium in Plant Physiology, edited by J.C. Shannon, D.P. Kinievel, and C.D. Boyer, pp. 219-232 (1986).
- C.J. McKinney** and S. Hottman. Design of an Ionized Air Electrode for Electrophysiological Research. Proceedings of the IEEE National Aerospace and Electronics Conference, pp. 1190-1192 (1983).