

Carlo Montemagno, PhD

University of Alberta
Department of Chemical and Materials Engineering
and
NRC•CNRC National Institute for Nanotechnology
Edmonton, AB T6G 2V4
Canada

Educational Background

1995	Ph.D.	<i>Department of Civil Engineering and Geological Sciences College of Earth and Mineral Sciences University of Notre Dame</i>
1990	M.S.	<i>Petroleum and Natural Gas Engineering College of Earth and Mineral Sciences Pennsylvania State University</i>
1980	B.S.	<i>Agricultural and Biological Engineering College of Engineering Cornell University</i>

Supplemental Education

1986	Practical Environmental Law	<i>Federal Publications Washington, DC</i>
1985	Effective Executive Training Program	<i>Wharton Business School University of Pennsylvania Philadelphia, PA</i>
1980	Civil Engineer Corp Officer Project & General Management School	<i>CECOS Port Hueneme, CA</i>

Professional Experience (Select Achievements)

Over three decades of experience in shepherding complex organizations both inside and outside academia. Working as a builder, I have led organizations in government, industry and higher education during periods of change and challenge to achieved goals that many perceived to be unattainable.

University of Alberta, Edmonton AB

9/12 to present

9/12 to present

Founding Director, Ingenuity Lab *Province of Alberta*

8/13 to present

Director Biomaterials Program *NRC•CNRC National Institute for Nanotechnology*

10/13 to present

**Canada Research Chair
in Intelligent Nanosystems** *Government of Canada*

3/13 to present

**AITF iCORE Strategic Chair
in BioNanotechnology and
Biomimetic Systems** *Province of Alberta*

9/12 to present

Professor *Faculty of Engineering, Chemical
and Materials Engineering*

Crafted and currently lead an Institute that bridges multiple organizations named Ingenuity Lab (www.ingenuitylab.ca). This Institute is a truly integrated multidisciplinary organization comprised of dedicated researchers from STEM, medicine, and the social sciences. Ingenuity Lab leverages Alberta's strengths in medicine, engineering, science and, agriculture that are present in multiple academic enterprises across the province to solve grand challenges in the areas of energy, environment, and health and rapidly translate the solutions to the economy.

The exciting and relevant feature of Ingenuity Lab is that support comes from resources outside the normal academic funding streams. Core funding of approximately \$8.6M/yr emerged by working and communicating a compelling vision directly with the Provincial Executive and Legislative branches of government. I significantly augmented these base resources by developing Federal Government, and Industry partnership agreements with a suite of multinational corporations and SME's across varied industry sectors.

Collectively, this effort is generating enhanced resource streams that support innovative academic programming, builds new research infrastructure, and enables high risk/high reward research. Just as important, it established new pathways to interact meaningfully with local and global communities.

Strategic Leadership

- Created the Ingenuity Lab organization including a governing board representing multiple academic institutions, government and industry sectors.
- Developed and executed a strategic plan to achieve near and long-term strategic objectives.
- Recruited ~100 researchers representing a wide range disciplines.
- Built out ~36,000 S.F. of laboratory and administrative space.
- Crafted operational policy and procedures.
- Developed and implemented a unique stakeholder inclusive management strategy focused on the rapid translation of solutions to the economy.

Innovation and Economic Engagement

- Member of the Expert Panel on innovation, commissioned by the Government of Alberta, to assess opportunities, challenges and design and implementation options for Alberta's multi-billion dollar investment to drive long-term economic growth and diversification. The developed strategy is currently being implemented.

- Served as a representative on multiple Canadian national trade missions to Asia, United States and the Middle East.
- Instituted formal development partnerships with several multi-national corporations including Johnson & Johnson, Cenovus and Sabuto Inc.
- Launched multiple for-profit joint ventures founded on technologies collaboratively developed with industry with funding from both private and public sources.

Branding

- Developed and implement a communication program focused on branding of Ingenuity Lab’s unique mission, both regionally and globally, to the lay public, academia, government, and industry. This effort employs traditional paper, online, and social media outlets to effectively reach different demographics.
- Awarded “Best Nanotechnology Research Organization – 2014” by The New Economy.

Global Development

- Executed formal research and education partnerships with the Yonsei Institute of Convergence Technology and the Yonsei Bio-IT MicroFab Center in Korea, Mahatma Gandhi University in India. and the Italian Institute of Technology.
- Opened Ingenuity Lab, India in May 2015. Focused on translating 21st-century technology to enable solutions appropriate for developing nations in the Energy, Agriculture, and Health economic sectors.
- Established partnership research and development agreements with SME’s in both Israel and India.
- Developed active research collaborations with medical and educational institutions in Nepal, Qatar, India, Israel, India and the United States.

Community Outreach

- Created Young Innovators research experience program to educate, support and nurture tyro undergraduate researchers and entrepreneurs.
- Developed an educational game, “Scopey’s Nano Adventure” for iOS and Android platforms to educate 6yr to 10yr olds about Nanotechnology.
- Delivered educational science programs to the lay public at multiple, high profile events.

University of Cincinnati, Cincinnati OH

7/06 to 8/12

7/10 to 8/12	Founding Dean	<i>College of Engineering and Applied Science</i>
7/09 to 6/10	Dean	<i>College of Applied Science</i>
7/06 to 6/10	Dean	<i>College of Engineering</i>
7/06 to 8/12	Geier Professor of Engineering Education	<i>College of Engineering</i>
7/06 to 8/12	Professor of Bioengineering	<i>College of Engineering College of Medicine</i>

Served as the founding Dean of the College of Engineering and Applied Science at the University of Cincinnati. The College educates approximately 3500 undergraduate and 1100 graduate students with a historical legacy of serving predominantly first-generation college students. 300 Faculty and staff support the College which has an annual all-funds operating budget of approximately \$78 million. The College offers over 20 Engineering and Engineering Technology degree programs with students earning degrees from the baccalaureate to the Ph.D. All of the undergraduate programs have a very strong experiential base, incorporating a year of mandatory cooperative education into a five-year baccalaureate program.

Leadership

As Dean of College of Engineering and Applied Sciences at the University of Cincinnati, I experienced a 30% reduction in my general funds budget while enrollment increased over 25%. I responded to these circumstances by consolidating departments, streamlining the administration and closing a number of academic programs all within the context of an unionized environment while being true to the principles of shared governance. Despite these pressures, in five years we moved the quality of undergraduate students from an average ACT score of 26.9 to 29.2 while maintaining diversity. We improved the graduation rate from 48% to over 62%. The College's USN&WR ranking improved from ~96 to 73.

The State of Ohio sought to modernize its system of public higher education, calling for less duplication in programs and more defined pathways from the associate's programs to the bachelor's degree. For over a year, I was the dean of two separate colleges, the College of Engineering and the College of Applied Science. The College of Applied Science contained engineering technology and a potpourri of general studies programs. The new plan required closing and phasing out many programs (~36), making the process difficult both academically and administratively. It required an extensive shared governance process that engaged all shareholders: faculty, staff, students, and alumni. The result was a new strong single college with a unique identity that retained the cultural heritage of both of the original institutions. The success of this effort was demonstrated when I was reappointed one year later after a comprehensive 360° review.

- Successfully integrated faculty, staff, and students with different cultures, on geographically separate campuses, in a highly unionized environment to create a wholly new college. Achievements included:
 - Creation of new governing by-laws
 - Establishment of new promotion and tenure criteria
 - Reorganization and regrouping of faculty and staff
 - No union complaints
 - Optimized the use of laboratory and instructional facilities
 - Reformed the entire curriculum, redefining all of the academic programs to eliminate duplication and provide enhanced multi-disciplinary experiences
 - Led the team for accreditation of the University of Cincinnati College of Engineering and Applied Sciences. Established and implemented the organization to support the simultaneous assessment of 14 Programs that spanned the breath of all three ABET commissions; Applied Science Accreditation Commission, Computing Accreditation Commission, and Engineering Accreditation Commission. All 14 programs received full accreditation for the maximum period.

Strategic Planning

- Served on the University Strategic Planning Committee developing a comprehensive plan for advancing student opportunities, community engagement, and research prominence.
- Member of the University of Cincinnati Foundation's Executive Planning Committee, developing and implementing a successful \$1B fundraising campaign.
- Led the crafting and implementation of the College of Engineering and Applied Science Strategic Plan

Fund Raising

- Board Trustee, University of Cincinnati Foundation Board.
- Served on the University of Cincinnati Foundation's Executive Planning Committee on a successful \$1B fundraising campaign. The College of Engineering development plan was used as the model for the University's fundraising program.
- Raised over \$32M in philanthropic gifts, (historical average was \$900K/yr.)
 - \$8M to support an Engineering Learning Center
 - \$6.8 to directly support undergraduate scholarships
- Raised over \$300M in corporate donations and cooperative development agreements.

Research

The development of new resource streams outside of normal funding channels enabled significant growth in enhanced educational and research opportunities.

- Focusing on research excellence and capitalizing on interdisciplinary opportunities increased research funding from a historical average of \$120K per faculty member per year to approximately \$340K per faculty member per year.
- Realigned teaching loads to be competitive with aspirational peer institutions.
- Worked with the Ohio State Government and Industry to secure funding to support the recruitment of high-quality faculty including seven endowed chaired Professors/Ohio Eminent Scholars
- Attracting three National Science Foundation centers, a National Institute of Health research center and established three state/industry supported research centers

Innovation

- Conceived and worked to establish the University of Cincinnati Research Institute, a 501(c)(3) not-for-profit corporation (<http://UCRI.org>). This entity was created specifically to address many of the challenges surrounding intellectual property ownership, funding mechanisms and interest conflicts associated with working jointly with commercial enterprises.
- Launched an Entrepreneurial Innovation Center where the College provided high-quality laboratory and office space along with free business training to support to both faculty and students.
- Hired faculty trained in industrial design and marketing to help provide a coherent multi-disciplinary, entrepreneurial experience.

- Instituted the entrepreneur professor sabbatical program that enabled faculty members to take a paid leave to help support the launching of new companies.

Government Relations

- Worked directly with cabinet-level government leaders and with boardroom level executives of multinational corporations to engage the powerful possibilities of government-industry-university partnerships.
- Partnered with industry and the State of Ohio to craft a new way forward for Ohio state university system and industry partnerships. These efforts resulted in an \$89M partnership with the University of Cincinnati that has been expanded to be inclusive with Universities throughout the Ohio state system. This model provides a permanent pathway to enable opportunities for faculty and students to act on their ideas while actively translating knowledge to the economy.
- Personally, tasked by the Governor of Ohio to help develop a policy that would accelerate the translation of University-developed intellectual property to the economy and facilitate joint development and research activities between private corporations and public universities. These efforts defined a new mode for the interaction between industry, education, and government to create a synergism that promotes economic and societal prosperity.

Education

I support the vision that the fields of science, technology, and medicine should not define the universe of collaborative engagement. Societal and artistic advancement play a central role in establishing a culture of inquiry that defines a great research university. I always strive to establish a culture of multi-disciplinary engagement that is as broad as possible. This directly supports the education of "T" type students, students who are educated to be the change agents of the future.

My education strategy is directed at empowering individuals with the skills to enable a lifetime of success and prosperity. Students see themselves as innovators and entrepreneurs; they want to be capable of working at the very edge where world-changing knowledge unfolds

- *Accreditation:*
 - Led the team for accreditation of the University of Cincinnati College of Engineering and Applied Sciences. Established and implemented the organization to support the simultaneous assessment of 14 Programs that spanned the breath of all three ABET commissions; Applied Science Accreditation Commission, Computing Accreditation Commission, and Engineering Accreditation Commission. All 14 programs received full accreditation for the maximum period.
 - Served on the University of Cincinnati leadership committee for University reaccreditation by The Higher Learning Commission. The University received full reaccreditation.
- *Engaged Learning:*
 - Retooling the entire undergraduate curriculum, eliminating topical duplications to provided increased curricular breadth.
 - Developed Funding and Constructed an alumni-funded Engineering Learning Center.

- Development of integrated curricular to establish both accelerated BS/MBA and BS/MS programs.
- *Interdisciplinary Opportunities:*
 - In collaboration with the College of Design, Architecture, Art and Planning captured a PACE Center award (<http://tinyurl.com/z76g7la>) focused on integrating design and advanced manufacturing. This multi-disciplinary center is funded by a partnership with General Motors, EDS, Hewlett-Packard, Siemens PLM Software and Sun Microsystems. This award is valued at \$421M, the largest award ever to the University of Cincinnati.
 - In a partnership between five Colleges and multi-national corporations (including P&G, Boeing, LG Pfizer, Kraft Foods) helped lead an effort to establish a unique Industry-Higher Education consortium called the Live Well Collaborative (<http://livewellcollaborative.org>). This organization focuses on the development of services and products for an aging population. It brings together over eight multi-national companies to collaboratively identify challenges and develop new market solutions while creating educational and research opportunities for both the faculty and students.
- *Global Experiences:*
 - In partnership with a number of multi-national companies, developed funding to support undergraduate cooperative educational experiences in 11 different countries.
 - Establishing a 2+3 joint degree program in partnership with Shanghai Jiao Tong University.
- *Diversity, Inclusiveness, and Success*
 - Improved under-represented student graduation rate from ~17% to 61%.
 - 40% of these graduates elected to seek a post-graduate degree.
 - Provided an Introduction to Engineering course to 11 High Schools, reaching over 350 students and specifically targeting women. Approximately 50% of course participants enrolled in technical university programs.
- *Student Leadership:*
 - Crafted and implemented a formal student bill of rights and responsibilities
 - Working with the student community, established a formal honor code for the college. The only formal honor code and student-run disciplinary committee at the University.
- *Community Outreach:*
 - Established Associate Dean for Outreach position focused on establishing programs to support STEM education in partnership with industry.
 - Developed targeted programs from 3rd grade up to formal science training for elementary and high school teachers.
 - Led a university effort that was awarded a \$9.3M grant from National Science Foundation to deliver a targeted engineering, enhanced mathematics and science program in the local school districts. Partnered with 14 school districts throughout

the state to establish four professional development pathways to enhance teacher preparedness to deliver engineering, mathematics and science curricula to middle and high school students.

University of California, Los Angeles		7/01 to 6/06
5/03 to 6/06	Associate Director	<i>California Nanosystems Institute</i>
7/02 to 6/06	Co-Director	<i>NASA Center for Cell Mimetic Space Exploration</i>
7/02 to 6/06	Founding Department Chair	<i>Department of Bioengineering</i>
7/02 to 6/06	Chair	<i>Biomedical Engineering IDP</i>
7/01 to 6/02	Chair of Academic Affairs	<i>Biomedical Engineering IDP</i>
7/01 to 6/06	Carol and Roy Doumani Professor of Biomedical Engineering	<i>College of Engineering and Applied Sciences</i>
7/01 to 6/06	Professor	<i>Mechanical and Aerospace Engineering</i>

Founding Chair, Department of Bioengineering

Recruited by UCLA to create the Bioengineering Department. There was considerable resistance within the UCLA's School of Engineering and Applied Science and the College of Science toward creating a new academic department. In fact, over the previous twenty years, UCLA had failed in two previous attempts to create a Bioengineering Department. Through an exhaustive engagement process, we were able to reach consensus on the research and educational

opportunities afforded by the creation of this new department. After a year of discussion, I was finally able to garner the faculty support needed to enable the formal creation of the new Department of Bioengineering.

Accomplishments

- Established the vision and educational direction and goals of the new department.
- Recruited the faculty to create the new Department.
- Coordinated the direction and development of a unique highly challenging Bioengineering curriculum.
- Established all of the needed evaluation and reporting mechanism to achieve full ABET accreditation. Full accreditation was awarded after the required evaluation period was satisfied.
- Raised both philanthropic and industrial partnership funding to support academic programming and infrastructure development.

- After 5-years the undergraduate Bioengineering Program reputation made admittance among the most competitive at UCLA, over 600 applicants with 170 students with perfect ACT and GPA records for 37 Freshmen openings.
- Led and advanced the Multi-College Biomedical Engineering Graduate program.
- Served on the College of Medicine Strategic Planning Committee.
- Member of the Executive Committee of the College of Medicine's Center for Advanced Surgical and Intervention Technologies.

Associate Director, California NanoSystems Institute

The California NanoSystems Institute was a strategic investment made by the State of California to fund a major, multi-university research initiative. Awarded to University of California, Los Angeles and the University of California, Santa Barbara, it provided funding to build a research building on each campus and initial operating funds to support the initial operation of the Institute. I served as the initial Associate Director representing engineering. In this capacity, I reported to the UCLA Vice Chancellor for Research. I was responsible for helping to establish the scientific agenda, graduate programs, partnerships with industry, developing resources, building bridges among the entirety of the university faculty and the recruitment of engineering talent.

Accomplishments

- Co-led the planning and implementation of the organization and financial management of the multi-campus California NanoSystems Institute.
- Helped design and construct \$150M research building.
- Recruited world-class faculty.
- Helped build a paid subscriber organization with multi-national corporations and investment bankers to establish a permanent pathway for communicating and translating technological advances, identifying market opportunities and provide a means to focus research directions.
- Successfully negotiated a permanent 1% overhead tax on all UCLA research funding to provide a stable base of long-term funding support.
- Supported faculty-led programs that explored the application of technology and the communication of ideas in novel art forms, and actively recruited faculty members from the social sciences into research communities.
- Co-PI an NSF-funded center to explore the cultural, ethical and economic impacts of "Nanotechnology in Society." This project was a collaboration of social scientists, ethicists, and scientists from UCLA, Harvard, and six other universities.

Cornell University, Ithaca NY

8/95 to 7/01

2/01 to 7/01

**Director of Biomedical
Engineering Graduate
Program**

College of Engineering

2/00 to 7/01 **Associate Professor** *Department of Biological and
Environmental Engineering
College of Engineering
College of Agriculture and Life
Sciences*

8/95 to 2/00 **Assistant Professor** *Department of Agricultural and
Biological Engineering
College of Engineering
College of Agriculture and Life
Sciences*

Leadership

- Worked to create the Biomedical Engineering graduate program at Cornell University. This program met with considerable opposition by many different constituencies but was finally approved. I served as the second director of the program.
- Served as Chair of the University Academic Programs and Policies Committee and charged with forging a unified parental leave policy for the University. At that time there were 13 Colleges each a unique leave policy, the difference between the Colleges was significant and were all driven by differences in culture. Working over a year, we crafted a policy that was ultimately approved by each college's faculty.
- Served on the Faculty Senate
- Appointed Operating Board Chair for the Ward Nuclear Reactor, charged with expanding its scientific mission to develop an economically sustainable operating model for the complex.
- Served on the Department ABET reaccreditation committee at Cornell University collecting and compiling the needed data to support the evaluation. The department received full accreditation.

Fund Raising

- Helped raise \$17M to support the construction of the first dedicated Nanotechnology Building, Duffield Hall.

Strategic Planning

- Served as committee member Nanotechnology Technical Advisory Group (nTAG) to the President's Council of Advisors on Science and Technology (PCAST).
- Helped draft the strategy document that led to the formation of the National Institutes of Biomedical Imaging and Bioengineering at NIH.
- Served in leadership roles on a number of National Research Council committees including the development of the scoping documents for the National Nanotechnology Initiative.

Argonne National Laboratories/University of Chicago, Argonne IL 5/88 to 8/95

2/95 to 8/95 **Group Leader** *Environmental Physics
Environmental Research Division*

2/91 to 1/95

Group Leader

*Advanced Environmental Studies
Environmental Research Division*

5/88 to 1/91

Program Manager

*Environmental Assessment and
Information Division*

Resource Development and Management

Identified governmental and societal needs and worked to develop research programs to address these needs.

- Secured continuous funding from multiple government and industrial sources, ultimately building and managing a \$14M a year research program
- Field implementing novel technologies associated with environmental assessment and remediation. These activities provided my initial experience on the difficulties associated with translating laboratory technologies to the marketplace.

Planning and Budget Development

- Detailed to directly support the then Secretary of Energy, Admiral Watkins. Tasked with helping to prepare the response to the “John Glenn Report” on environmental contamination caused by the nuclear military industrial complex. Helped to coordinate a complete assessment on all DOE-DOD nuclear facilities and used that information to create a budget submission to Congress. I learned a number of lessons on how to manage the political complexities associated with emotionally charged subject matter during this activity. Ultimately the budget that we prepared was submitted to and funded by Congress.

United States Naval Officer/Department of Energy

5/80 to 5/88

6/87 to 5/88

**Technical Assistant
Director**

*Naval Petroleum Reserves in
California
U.S. Department of Energy*

Responsible for managing all of the operational elements (except product sales) associated with one of the largest producing oil fields in North America.

- 1500 Engineers, Administrative Staff and Field workers.
- Total budget was \$2.4B revenue and \$360M operating (2016\$).

Leadership

While in this role my leadership and problem-solving management skills were seriously tested. A high-pressure pipeline exploded shutting in \$1M a day worth of production. The entire pipeline was corroded and needed to be replaced. In 27 days I was able to rebuild 24 miles of pipeline across the coastal mountains. A complex and demanding challenge, success required a significant team effort. I have always felt that much of the extraordinary effort was made because my team members didn't want to let the organization or me down. It still makes me proud of what they accomplished. The original time estimate by Bechtel Corporation to rebuild the pipeline was over six months, the difference in performance is the difference between leading and managing.

2/86 to 5/87

**Director Planning,
Analysis, and Program
Support Division**

*Naval Petroleum Reserves in
California*
U.S. Navy/ Department of Energy

Tasked by the Deputy Assistant Secretary of Energy to create and ultimately lead the Division of Planning, Analysis and Program Support at the Naval Petroleum Reserves in California. As Director of this Division, I was responsible for all out year budget planning, providing and supporting the congressional budget submittals and responsible for financial, environmental and safety assurance. Responsible for managing ~60 Analysts, Auditors, Attorneys, Engineers, Scientists and Administrative Staff.

Financial Planning

- Established the second federally certified cost, schedule control system. Now it is known in academia as responsibility based budgeting.
- Directly supported Congressional budget testimony.
- Prepared both short and long-term congressional budget submittals.
- Addressed two politically sensitive GAO congressional audits.
- Awarded a Federal Contract Warrant authorizing me to obligate the U.S. government.
- Prepared the supporting arguments and documentation to reauthorize the continuing production of the Naval Petroleum Reserve. Drafted the Presidential Executive Order that was signed by President Reagan.

Interagency Negotiation

- Negotiated an Endangered Species mitigation programs for three different endangered species with the U.S. Fish and Wildlife Service, this enabled the field to remain in profitable operation. This effort required numerous public community meetings and was regionally very controversial. It providing my first experience in communicating and resolving an emotionally charged issue in a public forum.
- Negotiated a reduction of a multi-million dollars fine from the U.S. EPA to ~\$125K.

6/84 to 1/86

**Sr. Oil and Gas
Production Engineer**

*Naval Petroleum Reserves in
California*
U.S. Navy/ Department of Energy

8/80 to 11/82

**Operations Manager/
Shops Engineer**

Civil Engineer Corp
U.S. Navy
Keflavik, Iceland

Commercial Start-ups

Founder and Chief Technical Officer, *Ingenuity Lab-Carbon Solution Inc.*, Focused on the biological transformation of flue gas carbon into specialty chemicals, Total Funding; ~\$3.2M, April 2016-present.

Founder and Chief Technical Officer, *Ensovi, LLC.*, Focused on the production of low-cost bioenergy and high-value added products from sunlight using bionanotechnology, Total Funding; ~\$10M, November 2010-present.

Founder and Chief Technical Officer, *AquaZ A/S* renamed *Applied Biomimetics A/S*, Focused on the development of high efficiency, low energy water purification systems using bionanotechnology, Total Funding; ~\$27M, <http://www.appliedbiomimetic.com>, March 2006-present.

Founder and Chief Technical Officer, *Bio/Solar Energias, LLC*, Focused on the development of spray-on, biosolar electricity-generating coatings using bionanotechnology, Total Funding; ~\$5M, November 2005 – May 2006.

Multi-disciplinary/Multi-institution Centers Led

Director and Founder, Ingenuity Lab, Province of Alberta

Co-P.I., DNA- Packaging Motor for Nanomed or Nanomotor Drug Delivery Center, NIH

P.I. and Interim Co-Director, Minimally Invasive Medical Technologies Center, NSF

Associate Director, California NanoSystems Institute, State of California

Co-P.I. NSEC: Nanotechnology in Society Project-Nano Connection to Society, NSF

Co-P.I., Collaborative Oral Fluid Diagnostic Research Center, NIH

Co-P.I., NIRT: Science and Commercialization NanoBank, Database and Analysis, NSF

Co-P.I., NASA Center for Cell Mimetic Space Exploration (CMISE), NASA

P.I., SGER Cooperative Education for Research Center, NSF

Thrust Team Leader, Science and Technology Center for BioNanoTechnology, NSF

Governmental Committees (select)

- Expert Panel Member, Provincial Committee on Innovation and Economic Diversification, developed report “Sustainable Prosperity through Innovation” to support the transformation of Alberta’s innovations system., September – December 2013.
- Committee Member, Nanotechnology Technical Advisory Group (nTAG) to the President’s Council of Advisors on Science and Technology (PCAST), 2003-2008
- Chair, International Panel for Opportunity Assessment (IPOA), Alberta, Canada, 2008 – 2010.
- Member, National Committee on Innovative Approach to Countering Biological Terrorism, February – November 2002.

- NASA Nanotechnology Program Steering Committee, NASA, 2000-2008.
- NRC Committee Member, Review of the National Nanotechnology Initiative - Molecular Self-Assembly, Washington, D.C., February 2005.
- Co-Chair NIH Working Group on Biological Nanostructures, BECON Symposium on Nanoscience and Nanotechnology: Shaping Biomedical Research, Bethesda, MD, June 2000.
- National Committee on Infrastructure Modernization, Department of Energy, 1989-1990.
- Environmental Research Advisory Committee, Department of Energy, Office of Health and Environmental Research, Germantown, MD, 1989.
- Kern County Hazardous Waste Disposal Planning Board, Bakersfield, CA 1986-1988.

Funding History

Novel functionalized Poly-caprolactone (PCL) retrievable scaffolds for islet transplantation, Juvenile Diabetes Research Foundation (JDRF), 8/1/2016 – 7/31/2019, Co-P.I., Amount: \$271,832.00.

Development of a novel bioreactor technology for the production of drop-in platform chemicals from agricultural by-products, Alberta Livestock & Meat Agency (ALMA), 3/1/2015 – 8/31/2016, P.I., Amount: \$124,500.

Characterization of Contact Lens Materials via Electron Microscopy, Johnson & Johnson Vision Care Inc., 1/9/2015 – 12/31/2015, P.I., Amount: \$54,918.

Vistakon Protein Channels Permeation Program, Johnson & Johnson Corporate, 12/10/2014 – 12/9/2015, P.I., Amount: \$120,752.

Artificial photosynthesis for managing industrially produced CO₂ emissions through carbon capture and value creation, Climate Change & Emissions Mgmt Corp (CCEMC), 9/1/2014 – 8/31/2016, P.I., Amount: \$500,000.

Canada Research Chair, Tier 1, in Intelligent Nanosystems, 10/01/13 – 9/30/20, P.I., Amount: \$1,400,000.

Alberta Innovates – Technology Futures iCORE Chair Account, NanoAccelerator Research Program, 4/1/2013 – 3/31/2018, P.I., Amount: \$4,987,951.

NanoAccelerator, Alberta Innovates – Technology Futures, 9/1/2012 – 3/31/2022, Amount: \$37,000,000.

Dose-sparing, high-efficacy vaccine delivery using pH-sensing active microcapsules, Bill & Melinda Gates Grand Challenges Explorations Winner, 2012, P.I., Award: \$100,000.

DNA- Packaging Motor for Nanomed or Nanomotor Drug Delivery Center, Purdue University/NIH, 9/30/06 – 9/29/11, Co-PI, Amount: \$4,315,785.

SGER Cooperative Education for Research Center, NSF, 9/15/06 – 8/31/08, P.I., Award: \$200,000.

Biomimetic Polymer Membranes, USAF/Office of Scientific Research, January 2005, P.I., Award: \$90,500.

Incorporating Biological Molecules Into Polymer Membranes in Water Transport, Power Generation and the Filtering Potential of BioMimetic Membranes, MT Technologies, April 2005, P.I., Award: \$125,000.

An Implantable Catheter-mounted MEMS-enabled Piezoresistive Pressure Sensor and Monitoring System, TATRC, March 2005, P.I., Award: \$305,393.

Haptic-Guided Telemonitoring System, TATRC, March 2005, Co-P.I., Award: \$329,142.

SGER Excitable Vesicles - A New Platform, NSF, July 2004, P.I., Award: \$99,417.

Advanced Technologies for Human Space Exploration and Biological Research (T4HSE), UCSC, July 2004, P.I., Award: \$225,000.

Integrated Massively Parallel Arrays of Stochastic Sensors (IMPASS), DARPA, January 2004, P.I., Award: \$500,446.

NIRT: Science and Commercialization NanoBank, Database and Analysis, NSF, August 2003, Co-P.I., Award: \$1,490,000.

Engineering Approach to Individually Tailored Medicine, NIH, July 2003, Co-P.I., Award: \$572,597.

Collaborative Oral Fluid Diagnostic Research Center, NIH, May 2002, Co- P.I., Award: \$688,638.

NASA Center for Cell Mimetic Space Exploration (CMISE), NASA, September, 2002, Co-P.I., Award: \$13,858,764.

Acutator Device Based on Ciliary Axonemal Chemo-Mechanics, Albert Einstein College of Medicine, June 2002, P.I., Award \$605,484.

Synthesis, Control and Assembly of Molecular Machines, DARPA, March 2002, P.I., Award: \$4,254,692.

Directed Application of Nanobiotechnology for the Development of Autonomous Biobots, NASA Institute for Advanced Concepts, May 2001, P.I. Award: \$75,000.

Estimating the Risk of Water Contamination by Cryptosporidium parvum oocysts and other Colloidal Pollutants, Water Environmental Research Foundation, January 2001, P.I., Award: \$218,337.

Construction of Nanosyringe Arrays for Inserting Biomolecular Motor-Powered Devices into Living Cells, SGER, National Science Foundation, January 2001, P.I., Award: \$100,000.

Investigation of Single Molecule Kinetics in Nanofluidic Chambers, LiCor Inc., November 2000, P.I., Award: \$161,860.

Quantification of the Risk of Surface Water Contamination by Cryptosporidium Parvum Oocysts and Other Colloidal Pollutants, USDA National Research Initiative, November 2000, P.I., Award: \$210,000.

Evaluating the Relevant Lateral Frictional and Vertical Forces in Nanoscale Biomolecular Systems, National Institute of Science and Technology, September 2000, P.I., Award: \$99,000.

Constructing Nanoscale Molecule Sorters Powered by F1-ATPase Biomolecular Motors, National Science Foundation, September 2000, P.I., Award: \$360,000.

Constructing a Nanofabricated Light Shutter System Actuated by Myosin Biomolecular Motors, Office of Naval Research, June 2000, P.I., Award: \$150,000.

Science and Technology Center for BioNanoTechnology, National Science Foundation, November 1999, Thrust Team Leader, Award: \$19,600,000.

A Photonic Biomolecular System for Powering Nanoelectromechanical Devices, Department of Energy, Basic Energy Sciences, July 1999. P.I., Award: \$396,453.

Alternate Fuel Systems for Powering Nanoelectromechanical Devices, Defense Advanced Research Project Agency, July 1999, P.I., Award: \$281,050.

Engineering Control of a Biomolecular Motor Powered Nanomechanical Device, National Aeronautics and Space Administration, Life Sciences in Microgravity Program, June 1999, P.I., Award: \$442,291.

Construction of a Biomolecular Motor-Powered Nanomechanical Device, National Science Foundation, SGER, March 1999, P.I., Award: \$50,000.

Estimating the Risk of Water Contamination by *Cryptosporidium parvum* oocysts and other Colloidal Pathogens, Department of the Interior Watershed Management Program, April 1999, P.I., Award:\$73,000.

Construction and Evaluation of a Nanomechanical Device Powered by a Biomolecular Motor, Office of Naval Research, February 1999, P.I., Award:\$1,444,000.

Field Demonstration of a Sequencing Batch Reactor for the Treatment of Dairy Waste, New York Empire State Development Grant, November 1998. P.I., Award: \$100,000.

Development and Demonstration of a 3rd Generation Treatment System for Agricultural Waste, N.Y.S. Biotechnology CAT Grant, July 1998, P.I., Award: \$52,000, (renewal).

Laboratory Investigation of Biological Nutrient Destruction in Dairy Manure, Northeast Dairy Producers Association, April 1998, P.I., Award: \$30,000, (renewal).

Watershed Development and Engineering, NSF Undergraduate Research Experience, NSF, February 1998, co-PI, Award: \$213,000.

Dewatering System for Aquaculture Waste, Technology Development Fund Grant, December 1998, co-P.I., Award: \$10,000.

Biological Treatment of Dairy Waste from High Animal Density Farms, Hatch NYC- 1237624, October 1997, P.I., Award: \$75,000

Photoluminescent Volumetric Imaging of the Geometry and Flow through Rock Fractures, GE Faculty for the Future, September 1997, P.I., Award: \$4,000.

Development of an Animal and Poultry Waste Management Center, USDA Fund for Rural America Planning Grant, September 1997, co-P.I., Award: \$25,000.

High-Density Animal Agriculture and the Environment, USDA Environmental Water Quality Program, January 1997, P.I., Award: \$5,000.

Development and Demonstration of a 3rd Generation Treatment System for Agricultural Waste” N.Y.S. Biotechnology CAT Grant, July 1997, P.I., Award: \$52,000.

Laboratory Investigation of Biological Nutrient Destruction in Dairy Manure, Northeast Dairy

Producers Association, April 1997, P.I., Award: \$15,000.

Travel award to attend the IAHS Assembly in Rabat, Morocco, National Science Foundation, April 1997, P.I., Award: \$2,000.

Improved Methods for Quantifying Pathogen Contamination of Domestic Water Supplies from Farm Runoff, Hatch NYC-123492, December 1996, P.I., Award: \$28,500.

Establishing a Quantitative Functional Relationship Between Capillary Pressure, Saturation and Interfacial Area, Department of Energy, September 1996, P.I., Award: \$962,000.

Micro-Characterization of Biofilms in Suspended Bed Bioreactor Systems, Hatch Project NYC-123436, June 1996, P.I., Award: \$80,000.

Scale Effects on Multiphase Flow in Porous Media, Argonne National Laboratory, December 1995, P.I., Award: \$50,000.

Investigation of the Effects of Scale on Physical and Biological Processes in Porous Media using Photoluminescent Volumetric Imaging, Sandia National Laboratories, November 1995, P.I., Award: \$125,000.

Evaluation of Anaerobic Digestion Options for Groups of Large Dairy Farms in Upstate New York, New York Natural Resource Council, October 1995, co-P.I., Award: \$40,000.

Theoretical and Fundamental Studies in Two-Phase Flow in Porous Media, NATO Collaborative Research Grant, CRG.950230, April 1995, co-P.I., Award: \$7,000.

Field Test of the *In Situ* Bioremediation of Fuel Oil Contaminated Soils in the Deep Vadose Zone, Sandia National Laboratories, October 1994, P.I., Award: \$560,000.

Pilot Demonstration of the Bioremediation of Explosives Contaminated Soils, U. S. Army Environmental Center, August 1993, P.I., Award: \$1,300,000.

Design and Construction of a Field Laboratory to Investigate the *In Situ* Biodegradation of Hydrocarbons in the Deep Vadose Zone, Sandia National Laboratories, June 1993, P.I., Award: \$2,150,000.

Field Test of Thermally Enhanced *In Situ* Bioventing of Hydrocarbon Contamination in Saturated Heavy Clay Soils, U.S. Air Force Space Command, February 1993, P.I., Award: \$400,000.

Laboratory and Numeric Investigation of the Influence of Geochemical and Soil Fluid Flow Properties on the *In Situ* Biodegradation of Hydrocarbons in the Deep Vadose Zone, Sandia National Laboratories, June 1992, P.I., Award: \$1,153,000.

Laboratory Testing and Design of a Pilot Soil Slurry System for the Bioremediation of Explosives Contaminated Soils, U. S. Army Toxic and Hazardous Material Agency, April 1991, P.I., Award: \$1,463,000.

Laboratory Investigation of Thermally Enhanced *In Situ* Bioventing in Saturated Clay Soils, U.S. Air Force Space Command, February 1990, P.I., Award: \$1,252,000.

Laboratory and Numeric Investigation into the Feasibility of *In Situ* Bioremediation of Fuel Oil Contaminated Soils in the Deep Vadose Zone, Los Alamos National Laboratory, June 1990, P.I., Award: \$911,000.

Numeric and Laboratory Investigation of the *In Situ* Radio Frequency Soil Decontamination

Process, U.S. Air Force Armstrong Laboratory, July 1989, P.I., Award: \$700,000.

Proof of Concept: The Biological Degradation of TNT in Aqueous Solution, U. S. Army Toxic and Hazardous Material Agency, July 1989, P.I., Award: \$313,000.

Laboratory Study of the *In Situ* Remediation of Hydrocarbon Contamination in Heavy Clay Soils, U.S. Air Force Space Command, August 1988, P.I., Award: \$1,200,000.

Patents

Functionalized Beta-Sheet Peptide Stabilized Membrane Proteins, Constructs Comprising Same, and Methods of Forming and Using Same, Montemagno, C.D., Germain, J., Minor, K., Abraham, S., Hoi, H., He, Y., Canada Patent #2,935,144, January 24, 2017.

Artificial Organelle for Enzymatic Cofactor Reduction, and Method of Making and Using Same, Montemagno, C.D., Minor, K., U.S. Provisional Patent Application #62/448335, January 19, 2017.

Functionalized Protein Structures and Three-Dimensional Printing Thereof, Montemagno, C.D., Mathews, A.S., Kumaran, S.K., Abraham, S., PCT #CA2016/051093, September 16, 2016.

Functionalized Beta-Sheet Peptide Stabilized Membrane Proteins, Constructs Comprising Same, and Methods of Forming and Using Same, Montemagno, C.D., Germain, J., Minor, K., Abraham, S., Hoi, H., He, Y., PCT #CA2015/050813, June 17, 2016.

Janus Carbon Nanotube Membranes and Methods of Making and Using Same, Montemagno, C.D., Abraham, S., Ma, G., U.S. Provisional Patent application #62/347418, June 8, 2016.

Nanofabricated Membrane Using Polymerized Proteoliposomes, Montemagno, C., Bhatt, C. Yi, J., Stenstrom, T., #US 9,359,230, June 7, 2016.

Nanofabricated Membrane Using Polymerized Proteoliposomes, Montemagno, C., Bhatt, C. Yi, J., Stenstrom, T., Canada Patent #2751331, April 26, 2016.

Nanofabricated Membrane Using Polymerized Proteoliposomes, Montemagno, C., Bhatt, C. Yi, J., Stenstrom, T., China Patent #ZL201080006576.9, August 26, 2015.

Functionalized Beta-Sheet Peptide Stabilized Membrane Proteins, Constructs Comprising Same, and Methods of Forming and Using Same, Montemagno, C.D., Germain, J., Minor, K., Abraham, S., Hoi, H., He, Y., U.S. Provisional Patent #15/506654, August 15, 2015.

Stimuli-Switchable Moieties, Monomers and Polymers Incorporating Stimuli-Switchable Moieties, and Methods of Making and Using Same, Montemagno, C.D., Abraham, S., Kumaran, S.K., PCT #CA2015/050812, August 25, 2015.

Nanofabricated Membrane Using Polymerized Proteoliposomes, Montemagno, C., Bhatt, C. Yi, J., Stenstrom, T., Mexico Patent #330272, May 22, 2015.

Nanofabricated Membrane Using Polymerized Proteoliposomes, Montemagno, C., Bhatt, C. Yi, J., Stenstrom, T., Japan Patent #5654493, November 28, 2014.

Biomimetic Membrane Formed from a Vesicle Thread Conjugate, China Patent, #ZL200980148890.8, October 29, 2014.

Biomimetic Membrane Formed from a Vesicle Thread Conjugate, Republic of Korea Patent, #1419259, July 8, 2014.

Biomimetic Membrane Formed from a Vesicle Thread Conjugate, Japan Patent, #5564510, June 20, 2014.

Biomimetic Membranes, Montemagno, C.D., Schmidt, J.J., Tozzi, S.P., Canada Patent, #2497273, June 10, 2014.

Nanofabricated Membrane Using Polymerized Proteoliposomes, Montemagno, C., Bhatt, C. Yi, J., Stenstrom, T., Singapore Patent #173165, February 25, 2014.

Nanofabricated Membrane Using Polymerized Proteoliposomes, Montemagno, C., Bhatt, C. Yi, J., Stenstrom, T., Republic of Korea Patent #1367437, February 19, 2014.

Foam Microreactor for multi-phase shear-sensitive reactions, #US 8,647,853 B2, February 11, 2014.

Biomimetic Membrane Formed from a Vesicle Thread Conjugate, Mexico Patent, #316239, December 9, 2013.

Biomimetic Membrane Formed from a Vesicle Thread Conjugate, Singapore Patent, #170271, November 15, 2013.

Biomimetic Membrane Formed from a Vesicle Thread Conjugate, Australia Patent, #2009301502, September 12, 2013.

Nanofabricated Membrane Using Polymerized Proteoliposomes, Montemagno, C., Bhatt, C. Yi, J., Stenstrom, T., Algeria Patent #8011, June 21, 2012.

Nanofabricated Membrane Using Polymerized Proteoliposomes, Montemagno, C., Bhatt, C. Yi, J., Stenstrom, T., Morocco Patent #33094, March 1, 2012.

Biomimetic Membrane Formed from a Vesicle Thread Conjugate, Montemagno, C., Morocco Patent, #32766, November 1, 2011.

Biomimetic Membrane Formed from a Vesicle Thread Conjugate, Montemagno, C., Patent US #20110259815 A1, October 27, 2011.

A Cell Culture Bioreactor and Method of Culturing Cells Using Bubble Architectures, Montemagno, C., U.S. Provisional Patent application #61/476164, April 15, 2011.

Nanofabricated Membrane Using Polymerized Preteoliposomes, Montemagno, C., Bhatt, C. Yi, J., Stenstrom, T., Australia Patent #2010210664, February 3, 2010.

Biomimetic Membranes, Montemagno, C.D., Schmidt, J.J., Tozzi, S.P., Japan Patent, #4444917, January 22, 2010.

Biomimetic Membranes, Montemagno, C.D., Schmidt, J.J., Tozzi, S.P., Australia Patent, #2003265250, June 11, 2009.

Biomimetic Membranes, Montemagno, C.D., Schmidt, J.J., Tozzi, S.P., Israel Patent #166509, February 27, 2009.

Biomimetic Membranes, Montemagno, C.D., Schmidt, J.J., Tozzi, S.P., China Patent, #03817994.6, April 2, 2008.

Biomimetic Membranes, Montemagno, C.D., Schmidt, J.J., Tozzi, S.P., Republic of Korea Patent, #10-0803845, February 5, 2008.

Volume Phase Transition to Induce Gel Movement, Patent #7,313,917, January 1, 2008.

Biomimetic Membranes, Montemagno, C.D., Schmidt, J.J., Tozzi, S.P., Patent #7,208,089 B2, April 24, 2007.

Microfluidic Affinity System Using PDMS and a Surface Modification Process, Patent #10/650,042, June 10, 2004.

Nanosyringe Array and Method, Montemagno, C.D., Patent # 6,686,299 B2, Montemagno, C.D., February 3, 2004.

Self-Assembled Muscle-Powered Microdevices, Montemagno, C.D., Patent Pending - #60/401,754, August 7, 2003.

Muscle Tissue Integrated with MEM System for Electronic Power Generation, Montemagno, C.D., Patent Pending - #60/398,784, August 8, 2002.

Biosolar Powered Material & Fabric, Montemagno, C.D., Patent Pending - #60/398,784, August 5, 2002.

Piezoelectric Patch for Cardiac Stimulation, Montemagno, C.D., Patent Pending - #10/704,150.

Enzymes as a Power Source for Nanofabrication Devices. Montemagno, C.D., Patent Pending - #09/ 416,775, July 1, 2002.

Microfluidic Microorganisms Detection System, Montemagno, C.D., Patent Pending #10/187,309, July 1, 2002.

Electronic Detection of Pathogens in Water and Liquid Foods, Montemagno, C.D., Patent Pending - #99/ 23636, August, 1999.

Granular Activated Carbon-Sequencing Batch Biofilm Reactor, Montemagno, C.D., Irving, R.L., Patent #5,126,050, June 30, 1992.

Select Awards, Honors & Named Lectures

Academic Honors

- Fellow, American Institute for Medical and Biological Engineering, 2007.
- Fellow, American Academy of Nanomedicine, Baltimore, MD, 2005.
- Fellow, NASA Institute for Advanced Concepts, 2001.
- Canada Research Chair in Intelligent Nanosystems, Tier 1, October 2013.
- Anna Borun and Harry Borun Foundation Visiting Professor in Cardiology, UCLA, April 2002.

Awards

- Feynman Prize for Experimental Work in Nanotechnology, 2003.
- Earth Award, Grand Prize Winner, 2010.
- The New Economy “Best Nanotechnology Research Organisation – 2014” awarded to Ingenuity Lab, September 2014.
- Named world-wide top 10 Green Environmental Innovator and Entrepreneur, CNBC Business, <http://www.cnbc.com/story/bright-green/1090/1/>, January, 2010.

- Finalist for Discovery Magazine's Technological Innovation of the Year in the category of Emerging Technology, 1999.
- Bill & Melinda Gates Grand Challenges Explorations Winner, 2012
- The University of Notre Dame Alumni Graduate Student Award for Excellence in Research, May 1994.
- Nominated by the University of Notre Dame for the 1995 Council of Graduate Schools/University Microfilms International Distinguished Dissertation Award in Mathematical and Physical Science and Engineering.
- Roberts Fellowship, Cornell University, September 1979.

Named Lectures

- The Mihail Roco Distinguished Lecturer in Nanoscale Science and Technology, Industrial Technology Research Institute, Taipei, Taiwan, November 30, 2004.
- Bakken Memorial Lecturer, Medtronic Corporation, Minneapolis, MN, December 4, 2003.
- The Ernest Guptill Memorial Lecturer, Department of Physics and Atmospheric Science, Dalhousie University, Halifax, Nova Scotia, Canada, February 1, 2002.

Keynote and Plenary Lectures (Select)

Montemagno, C.D., "Thinking Small to Define a Big Future," International Conference and Exhibition on Nanomedicine and Nanotechnology, Baltimore, MD, October 12, 2016.

Montemagno, C.D., "Small Things Offer Big Promise," 6th International Conference and Exhibition on Materials Science and Engineering, Atlanta, GA, September 12, 2016

Montemagno, C.D., "Thinking Small to Define a Big Future," Advanced Polymeric Materials ICM 2016, Mahatma Gandhi University, India, May 13, 2016.

Montemagno, C.D., "Thinking Small to Define a Big Future," 5th International Conference on Nanotek & Expo 2015, San Antonio, Texas, November 16, 2015.

Montemagno, C.D., "Giving Life to Man-Made Materials," Canadian Chemical Engineering Conference, Calgary, Alberta, October 5, 2015.

Montemagno, C.D. "Thinking Small to Define a Big Future," 11th International Symposium on Biocatalysis and Agricultural Biotechnology, Banff, Alberta, September 13-14, 2015.

Montemagno, C.D., "The Nexus of Energy, Water, Health and Food: Exercising a New Paradigm to Solve Global Quality of Life Challenges," ICMEMSS 2014, Bangalore, India, December 18, 2014.

Montemagno, C.D., "Energy, Water, Health and Food: Thinking Small to Solve Global Quality of Life Challenges," 7th Bangalore India Nano 2014, Bangalore, India, December 6, 2014.

Montemagno, C.D., "Thinking Small to Solve Big Problems: Exercising a New Paradigm to Solve Global Quality of Life Challenges," 2nd IEEE International Conference on Emerging Electronics, Bangalore, India, December 4, 2014.

Montemagno, C.D., "The Coming Nanotechnology Revolution: Capturing Life into Materials," World Ophthalmology Congress 2012, Abu Dhabi, UAE, February 18, 2012.

Montemagno, C.D., "Nanomedicine – where is it headed?," *World Ophthalmology Congress 2010*, Berlin, Germany, June 7, 2010.

Montemagno, C.D., "Energy, Environment and Efficiency: Addressing the Engineering Trinity by Capturing Life in Materials," *Vienna Biocenter Ph.D. Symposium*, Vienna, Austria, November 12, 2009.

Montemagno, C.D., "Nano-Enabled Biomaterials," *2009 International Conference on Nanotechnology for the Forest Products Industry*, Edmonton, Alberta, Canada, June 25, 2009.

Montemagno, C.D., "Integrative Technology: Using 21st Century Tools to Realize 21st Century Visions," *Bio-Nano Manufacturing Grand Challenges for 2020 Workshop*, NSF sponsored workshop, Arlington, VA, April 14, 2008.

Montemagno, C.D., "Energy, Environment, and Efficiency: Addressing the Engineering Trinity by Capturing Life in Materials," *NanoApp Summit 2007*, Cleveland, OH, October 24, 2007.

Montemagno, C.D., "Molecular Engineering Biomimetic Materials and Systems," *11th International Ceramics Congress and 4th Forum on New Materials*, Acireale, Sicily, Italy, June 5th, 2006.

Montemagno, C.D., "NEXGEN Restorative Healthcare thru Synthetic Biology and Nanomedicine," *First Annual AANM Meeting*, August 16th, 2005.

Montemagno, C.D., "Getting To Mind," *COE Symposium at Nagoya University*, Nagoya, Japan, August 6th, 2005.

Montemagno, C.D., "NEXGEN Restorative Healthcare thru Synthetic Biology and Nanoscience," *Rutgers 23rd Annual Int'l Computer and Technology Conference*, Atlanta, GA, April 15th, 2005.

Montemagno, C.D., "Restorative Healthcare thru Synthetic Biology," *the 2005 Medical Scientist Training Program Distinguished Lecture*, Dept. of Human Genetics, UCLA, April 13, 2005.

Montemagno, C.D., "Engineering Lifelike Functionality into Materials and Systems," *Bioconjugated Molecular Materials and Devices*, The Kavli Institute at Cornell, Ithaca, NY, December 6, 2005.

Montemagno, C.D., "Synthesis and Characterization of Biomolecular Hybrid Devices as Energy Conversion Systems," *The Mihail Roco Distinguished Lecture in Nanoscale Science and Technology*, Taipei, Taiwan, November 30, 2004.

Montemagno, C.D., "Engineering Life Into Matter," *The Interpacific Workshop on Nanoscience and Nanotechnology*, Hong Kong, China, November 23, 2004.

Montemagno, C.D., "Engineering Life Into Matter," *28th Annual Symposium of the Macromolecular Science and Engineering Center, University of Michigan*, October 28, 2004.

Montemagno, C.D., "Integrative Technology: A New Approach for the Engineering of "Intelligent" Systems and Materials," *2004 Joint International Meeting of the Electrochemical Society, Inc.*, October 6, 2004.

Montemagno, C.D., "Self-Assembly of Muscle Powered Microdevices," *The 12th International Conference on Experimental Mechanics (ICEM12)*, Bari, Italy, August 31st, 2004.

Montemagno, C.D., "Integrative Technology: Engineering Emergent Behavior into Materials and Systems," *The International Conference on MEMS, NANO and SMART Systems*, Banff,

Alberta, Canada, August 25th, 2004.

Montemagno, C.D., "Integrative Technology: 21st Century Technology for 21st Century Engineers," *18th IFIP World Computer Congress*, Toulouse, France, August 23d, 2004.

Montemagno, C.D., "Engineering with Life: New Tools for the 21st Century," *ULIBD 2004 Conference*, Cancun, Mexico, April 14, 2004.

Montemagno, C.D., "Engineering with Life: The Technology of the 21st Century," *Annual BioEngineering Expo 2004*, Cornell University, April 15, 2004.

Montemagno, C.D., "Engineering With Life," *Animate (In) Animate: Engineering at the Threshold of Life*, San Francisco Exploratorium, February 21, 2004.

Montemagno, C.D., "Using Nanobiotechnology to Engineer and Build Complex Hybrid Living Systems," *Frontiers of Integration Workshop*, Edmonton, Canada, October 28, 2002

Montemagno, C.D., "Nanobiotechnology: Creating with the Engines of Creation," *Technologies Shaping the Future*, University of California, Los Angeles, CA, October 11, 2002.

Montemagno, C.D., "Powering Inorganic Nanodevices with a Biomolecular Motor," *3rd Annual BioMEMS & Biomedical NANotech World 2002*, Columbus, Ohio, September 6-8, 2002.

Montemagno, C.D., "Harnessing the Engines of Life: The Art and Science of Engineering Hybrid Living/Non-living Devices One Molecule at a Time," *The International Conference on Micro and Nano Systems 2002 (ICMNS)*, Kunming, China, August 11-14, 2002.

Montemagno, C.D., "Convergence: Integrating Modern Biology with Engineering," *IBC USA's 7th Annual World Congress on Enzyme Technologies: Accelerating the Discovery, Versatility, and Commercialization of Enzyme Applications*, San Francisco, CA, March 4-6, 2002.

Montemagno, C.D., "Nanotechnology, Biotechnology, and Complexity: Building Blocks for the Fabrication of Hybrid Living/Non-Living Devices at the Micro and Nano Scales," *2002 NASA Cell Science Conference*, Palo Alto, CA, February 2002.

Montemagno, C.D., "Convergence: Integrating Modern Biology with Modern Engineering," *15th IEEE International Micro Electro Mechanical Systems Conference*, Las Vegas, Nevada, January 20-23, 2002.

Select Professional Activities

Established Ingenuity Lab – India, Kerala, India, May 15, 2016.

Coordinated First Joint Ingenuity Lab – Italian Institute of Technology Symposium, Genova, Italy, September 9-10, 2015.

Coordinator, Nanotechnology, Bioengineering & Other New Technologies Program, 30th APAO Annual Congress, Guangzhou, China, April 1 – 4, 2015.

Supported and Established first Canadian Student University Chapter of Materials Research Society, December 2, 2013.

Judging Panel, geekStarter iGEM Collegiate and iGEM Entrepreneurial Workshop, University of Calgary, Calgary, AB, September 14-15, 2013.

Panelist, Life of the Mind: Interdisciplinary conversations with UC faculty, University of Cincinnati, Cincinnati, OH, April 19, 2011.

Panel Speaker, NIH Nanomedicine Development Centers, 3rd Annual Meeting, Bethesda, MD, April 5-7, 2009.

General Co-Chair, 34th Annual Dayton-Cincinnati Aerospace Science Symposium, Dayton, OH, March 3, 2009.

Panelist, Bridges to Engineering Research-2020 Foundation for National Partnerships Workshop sponsored by NSF, Greensboro, NC, March 12-14, 2008.

Conference Co-Chair, Converging Technologies for Improving Human Performance: Nanotechnology, Biotechnology, Information Technology & Cognitive Science, Kailua-Kona, HI, February 24-25, 2005.

Panel Reviewer, Healthtech: The Future of Nanomedicine, San Francisco, CA, April 26, 2005.

Session Co-Chair and Adviser, NNI Research Directions II Workshop, Washington, D.C., September 8-10, 2004.

Panel Discussion Moderator, NIH Nanomedicine Roadmap Initiative: Project Launch Meeting, Bethesda, MD, May 4th, 2004.

Panel Reviewer, INGVAR Grants, Swedish Foundation for Strategic Research, Spring 2004.

Panel Reviewer, NIH, Washington D.C., March 18-19, 2004.

Panel Reviewer, NASA MSMT Psychem Panel Review, Washington D.C., March 15- 17, 2004.

Panel Discussion, Moderator, "Multidisciplinary Cooperation Opportunities and Challenges," NBIC Convergence 2004, February 27, 2004.

Advisor, NBC Affiliate Stations/ScienCentral, Science News, 2003

Conference Chairman, "Converging Technologies for Improving Human Performance" NBIC Convergence 2003, UCLA, February 2003

Scientific Committee, Session Chair, Look to the Future, The Microfluidics, Microarrays, and BioMEMS Conference, SmallTalk 2002, San Diego, CA, July 28-31, 2002.

Organizer, International MEMS Workshop 2001, Singapore, July 2001.

Session Chairman, "Micro and Nanoscale Physics," 19th Symposium on Energy Engineering Sciences, Argonne, IL, May 2001.

Organizer, Nanospace 2001: Exploring Interdisciplinary Frontiers, Galveston, TX, March 2001.

Session Chairman, "Biomolecular Nanotechnology/Biocomputing," Nanospace 2001: Exploring Interdisciplinary Frontiers, Galveston, TX, March, 2001.

Session Chair, "Biomolecular Nanotechnology/Biocomputing," NanoSpace 2000, Exploring the Human Frontier, January 24, 2000.

Session Chairperson, "Biomolecular Nanotechnology/Biocomputing," NanoSpace 2000: The International Conference on Integrating Nano/Microtechnology for Space Applications, Houston, TX, Jan. 1999.

Member, Expert Panel on Nanotechnology, "NanoSpace 2000: The International Conference on Integrating Nano/Microtechnology for Space Applications," Section entitled: Biomolecular

Nanotechnology/Biocomputing, Houston, TX, Jan. 1999.

Panel Reviewer, XYZ on a Chip, National Science Foundation, July 1999.

Convener, Special Session on “Transport of Particles at the Microscale,” at *American Geophysical Union Annual Fall Meeting*, San Francisco, CA, Dec. 1998.

Organizer, Minisymposium on “Effects of Microprocesses and Microstructure on Soil Properties and Fluid Flow through Porous Media,” at *4th SIAM Conference on Mathematical and Computational Issues in the Geosciences*, Albuquerque, NM, June 1997.

Convener, Special Session on “Waterborne Cryptosporidium: Integrating Hydrologic, Hydraulic, and Microbiologic Understanding at Multiple Scales for Water Supply Protection,” at *American Geophysical Union Annual Spring Meeting*, Baltimore, MD, May 1997.

Session Chairperson “Water Quality and Environmental Chemistry,” at *American Geophysical Union Annual Spring Meeting*, Baltimore, MD, May 1997.

Session Chairperson, “Treatment Technologies II” at the *Second International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe*, Budapest, Hungary, September 1994.

Session Chairperson, “Applications of Bioremediation” at Hazardous Waste Conference, University of Notre Dame, August 1992.

Session Chairperson, “Site Remediation Methods,” International Symposium on Environmental Contamination in Central and Eastern Europe, Budapest, Hungary, September 1992.

Reviewer, Basic Energy Sciences Program - Geosciences, Department of Energy

Reviewer, National Science Foundation, Washington, D.C.

Current and Past Editorial Services to Scholarly Publications

Bioengineering and Medicine

Editorial Board Member, Translational Vision Science & Technology

Editorial Board Member, Henry Journal of Cellular & Molecular Oncology

Editorial Board Member, Henry Journal of Nanoscience, Nanomedicine & Nanobiology

Editorial Board Member, International Journal of Nanomedicine and Nanosurgery

Editorial Board Member, SM Journal of Nanotechnology and Nano-Medicine

Editorial Board Member, Journal of Molecular and Cellular Biomechanics (MCB)

Editorial Board Member, Journal of Ocular Biology, Diseases, and Informatics (JOBDI)

Editorial Board Member, Journal of Biomedical Nanotechnology

Associate Editor, NANOMEDICINE: Nanotechnology, Biology, and Medicine

Nanotechnology and Engineering

Editorial Board Member, Journal of Nanobiotechnology

Editorial Board Member, Industrial Engineering & Management Journal
Associate Editor, Journal of Nanoparticle Research
Editorial Board Member, Journal of Nanoscience Letters
Editorial Board Member, Journal of Nanoengineering and Nanosystems
Associate Editor, International Journal of Nanotechnology and Molecular Computation (IJNMC)
Editorial Board Member, Recent Patents on Nanotechnology
Editorial Board Member, Book Series on Nanoscience and Nanotechnology
Editorial Board Member, Recent Patents in Nanotechnology
Editorial Board Member, International Journal of Nanomedicine
North American Editor, Nanotechnology

Select Academic Review Services

Reviewer, Journal of Nanoscience and Nanotechnology - American Scientific Publishers, Stevenson Ranch, CA.
Reviewer, Science - American Association for the Advancement of Science - Washington, D.C.
Reviewer, Nature - NPG, San Francisco, CA.
Reviewer, Nature Materials - NPG Academic Journals, New York, NY.
Reviewer, Nano Letters - American Chemical Society Publications, Washington, D.C.
Reviewer, National Resource Council – National Academy of Science.
Reviewer, Advances in Water Resources, Elsevier Science Publishers Ltd., Essex, UK.
Reviewer, Water Resource Research, American Geophysical Union, Washington, D.C.
Reviewer, Geophysical Research Letters, American Geophysical Union, Washington, D.C.

Professional Societies

Chemical Institute of Canada
Association for Research in Vision and Ophthalmology (ARVO)
International Society for Nanoscale Science, Computation and Engineering
University of Cambridge, Christ College Research Institute
American Society for Engineering Education (ASEE)
American BioPhysical Society
American Heart Association
American Stroke Association
American Association for the Advancement of Science (AAAS)
American Geophysical Union
Materials Research Society

American Chemical Society

Society of Petroleum Engineers

American Institute for Medical and Biological Engineering (AIMBE), Fellow Membership

American Society of Agricultural and Biological Engineers (ASABE)

Biophysical Society

Asia-Pacific Journal of Ophthalmology (APJO) `

Select University Committees

Member, Executive Sub-Committee University of Cincinnati Foundation Strategic Planning Committee, 2010-present

Member, University of Cincinnati Foundation Strategic Planning Committee, 2010-present

Chair, Council of Deans, University of Cincinnati, 2009-2010

Chair, College of Business Decanal Search Committee, 2009-2010

Member, Presidents Cabinet, 2009-2010

Member, Executive Committee UC Foundation Board of Trustees, 2009-2010

Chair, Advisory Board Committee, UCLA Henry Samueli School of Engineering and Applied Science, 2003-2006.

UCLA Research Planning Committee, 2004-2006.

UCLA BioSciences Strategic Research and Development Initiative, 2005-2006.

Strategic Planning Committee for the UCLA David S. Geffen School of Medicine, 2/2005-6/2005.

Review Committee for the Dean of the UCLA David S. Geffen School of Medicine, 2003-2004.

Dean Search Committee, UCLA Henry Samueli School of Engineering and Applied Science, 2002-2003.

Executive Committee for the Ward Center for Nuclear Sciences, 1998-2001

Chair, University Committee on Academic Programs and Policies, 1997-1999

ProDairy Advisory Committee, 1997-1999

Ward Nuclear Laboratory Finance Subcommittee 1997-1998

University Committee on Academic Programs and Policies, 1996-1997

Cornell University Bioengineering Committee, 1996-2001

Member at Large, Cornell Faculty Senate, 1995-1999

CCGB Math and Science Subcommittee, 1995-1998

Select Departmental Committees

Bioengineering Undergraduate Curriculum Committee, 2003-2006

Bioengineering Open House Committee, 2003-2006

ABET Accreditation Committee, 2002-2006

Biomedical Engineering Preliminary Comprehensive Exam Committee, 2001-2006

Biomedical Engineering Graduate Curriculum Committee, 2001-2006

Biomedical Engineering Fellowship Committee, 2001-2006

Bioengineering Faculty Recruitment Committee, 2001-2006

Biomedical Engineering Graduate Admissions Committee, 1997-2001

ABEN Graduate Coordinating Committee, 1995-2001

Faculty Awards Nomination Committee, 1997-1998

Courses Taught

Advanced Topics in Nanobiotechnology, CME 694

Technical Communications, CME 483

Application of Nanotechnology to Complex Adaptive Systems, BME 298

Research Topics in Biomedical Engineering and Bioengineering - Nanotechnology Research, BME 295A

Microsciences, MAE 281

Current Topics in Mechanical Engineering, MAE 260

Fundamentals of Engineering Design, ABEN 396

Environmental Systems Analysis, ABEN 475

Fundamentals of Biomedical Engineering I- Cellular Dynamics, ENGRG 605

Fundamentals of Biomedical Engineering II-Bioinstrumentation, ENGRG 606

Books (edited)

Roco M. C. and Montemagno, "The Coevolution of Human Potential and Converging Technologies," *Annals of the New York Academy of Sciences*, vol. 1013, 2004.

Book Chapters

Choi, H-J. and Montemagno, C.D., "Convergence of Nanotechnology and Biotechnology," *Handbook of Science and Technology Convergence*, Springer International Publishing Switzerland, ISBN: 978-3-319-04033-2, 2014.

Choi, H-J. and Montemagno, C.D., “Nanobiotechnology: transforming ideas into reality,” Handbook of Science and Technology Convergence: Convergence of Nanotechnology and Biotechnology, SpringerReference, DOI 10.1007/978-3-319-04033-2-65-1 (2014).

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Yeghiazarian L. and C. D. Montemagno, Incorporation of the Water Erosion Prediction Project (WEPP) in the Modeling of Transport of Pathogenic Microorganism from Non-Point Sources of Pollution, *Soil Erosion Research for the 21st Century* (Ed. J.C. Ascough II and D. C. Flanagan), American Society of Agricultural Engineers, St. Joseph, MI, 127-130, 2001.

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Montemagno, C.D., A. Leo, and J. Craig, “Site Characterization for *In-Situ* Bioremediation of the Vadose Zone,” *Hydrogeologic Investigation, Evaluation and Groundwater Modeling* (Ed. Y. Eckstein and A. Zaporozec), Water Environment Federation, Alexandria, VA, 121-131, 1993.

Peters, R.W., C.D. Montemagno, L. Shem, and B.-A.G. Lewis, “Surfactant Flooding of Diesel-Fuel-Contaminated Soil,” *ACS Symposium Series on Remediation: Removal of Organic and Metal Ion Pollution*, ACS Series 509, 85-98, 1992.

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Montemagno, C.D., "Compositional Simulation of In-Situ Soil Remediation," Conference on the Characterization of Transport Phenomena in the Vadose Zone, Tucson, AZ, 48, April, 1991.

Loureiro, C., D. Tomasko, and C.D. Montemagno, "Fate and Transport Modeling of a Diesel Oil Spill at SNL," Conference on the Characterization of Transport Phenomena in the Vadose zone, Tucson, AZ, 44, April, 1991.

Tomasko, D., R. Johnson, and C.D. Montemagno, "Van Genuchten Parameters for a Fuel Oil Spill at SNLL," Conference on the Characterization of Transport Phenomena in the Vadose Zone, Tucson, AZ, 63, April, 1991.

Plenary Lectures

Montemagno, C.D., "Nanotechnology the Next 15 Years: Creating the Future with Life", Canada-Japan Nanotechnology Workshop, Tokyo, Japan, January 29, 2013.

Montemagno, C.D., "Next Generation Nanotechnology: Capturing Life in Materials," 12th International Symposium on Biomimetic Materials Processing, Nagoya, Japan, January 25, 2013.

Montemagno, C.D., "Next Generation Nanotechnology," 11th International Symposium on Biomimetic Materials Processing, Nagoya, Japan, January 25, 2012.

Montemagno, C.D., "Green chemistry-innovations and applications," Presidents Lecture, 239th ACS National Meeting, San Francisco, CA, March 21, 2010.

Montemagno, C.D., "Engineering Minimal Life Functions into Materials to Create New Therapeutics," *Southern Regional Meeting*, New Orleans, LA, February 10, 2007.

Montemagno, C.D., "Building Life into Materials," *UT Symposium on NanoBio Integration*, University of Tokyo, Tokyo, Japan, December 6, 2006.

Montemagno, C.D., "Making Organs, Making Life: the Convergence of Biomedicine and Nanotechnology," *12th Annual Thomas A. Pitts Memorial Lectureship*, Charleston, S.C., September 9th, 2005.

Montemagno, C.D., "Engineering Sentient Materials," *IAAC Inaugural Meetings*, Hefei, China, August 9th, 2005.

Montemagno, C.D., "Engineering Emergent Functionality Using Synthetic Biomimetic Polymers," *ISETS05 Symposium*, Nagoya, Japan, August 8th, 2005.

Montemagno, C.D., "Using Synthetic Biology to Engineer Sentient Material and Systems," *ICIM '05*, Tokyo, Japan, July 4, 2005.

Montemagno, C.D., "Engineering Molecular Informatic Systems Using Synthetic Biology," *Symposium on Molecular Imaging and Characterization*, University of Montreal, Montreal, Canada, May 20th, 2005.

Montemagno, C.D., "NEXGEN Restorative Healthcare thru Synthetic Biology and Nanoscience," *ASME Biomedicine Miniaturization 2005 Conference*, Irvine, CA, April 8, 2005.

Montemagno, C.D., "Engineering Energy Transduction Systems Using the Engines of Creation," *DARPA Nanopower Workshop*, March 29, 2005.

Montemagno, C.D., "Engineering Life Functions with the Engines of Creation," *AAAS Annual Meeting*, Washington D.C., February 18, 2005.

Montemagno, C.D., "NEXGEN Restorative Health Care thru Synthetic Biology and Nanoscience," *TATRC's Biomedical Nanoscience IRT*, February 9th, 2005.

Montemagno, C.D., "Synthesis, Control and Assembly of Molecular Machines," *BMM Principal Investigator's Meeting*, February 1, 2005.

Montemagno, C.D., "Integrated Massively Parallel Arrays," *Moldice PI Meeting*, Savannah, GA, October 2004.

Montemagno, C.D., "Energetics and CMISE," *URETI Workshop*, Baltimore, MD, October 14, 2004.

Montemagno, C.D., "Synthesis, Control and Assembly of Molecular Machines," *Bio Molecular Motors PI Meeting*, Jackson Hole, WY, June 7, 2004.

Montemagno, C.D., "Engineering with Life: The Technology of the 21st Century," *AAMC 2004 Grand Annual Meeting*, Arlington, VA, May 1, 2004.

Montemagno, C.D., "Integrative Technology: 21st Century Technology for 21st Century Engineers," *IMEC 20th Anniversary ON(E) Track to the Future Colloquium*, Royal Flemish Academy of Belgium for Science and the Arts, Brussels, Belgium, April 27, 2004.

Montemagno, C.D., "Molecular Motor," *Electric Power in Vivo Workshop and Symposium*, USC, San Diego, February 28, 2004.

Montemagno, C.D., "Integrative Technology: 21st Century Technology for 21st Century Engineers," *Fourth International Symposium on Biomimetic Materials Processing (BMMP-4)*, Nagoya, Japan, January 28, 2004.

Montemagno, C.D., "Nanotechnology Implications on Quality of Life: Medicine, Environmental, Cognition, Communication and Other Areas," *Workshop on Societal Implications of Nanoscience and Nanotechnology*, Arlington, VA, December 3, 2003.

Montemagno, C.D., "Nanotechnology, Biotechnology and Complexity Theory, Essential Tools for Engineering Hybrid Biotic-Abiotic Systems," *Frontiers in Research Lectures, University of Ottawa Ontario*, Canada, November 13, 2003.

Montemagno, C.D., "Nanotechnology, Biotechnology and Complexity Theory, Essential Tools for Engineering Hybrid Biotic-Abiotic Systems," *International Symposium on Clusters and Nano-Assemblies: Physical and Biological Systems*, Richmond, VA, November 10-13, 2003.

Montemagno, C.D., "Understanding How Cells Work Through Bottom-Up Assembly of Biological Nanosystems," *National Nanotechnology Initiative Workshop on NanoBiotechnology*, National Rural Electric Cooperative Foundation, Arlington, VA, October 9, 2003.

Montemagno, C.D., "Engineering Embedding Intelligence into Materials and Devices Using Integrative technology." *Physical Science Colloquium, Physics Department, McGill University, Montreal, Quebec, Canada, October 3, 2003.*

Montemagno, C.D., "Beyond Carbon Nanotubes and Single-Molecule Devices: Engineering Next Generation Embedded Intelligent Systems," *IEEE International Conference on Robotics and Automation, Taipei, Taiwan, September 14-19, 2003.*

Montemagno, C.D., "Beyond Carbon Nanotubes and Single-Molecule Devices: Engineering Next Generation Embedded Intelligent Systems," *IFMBE Proceedings - World Congress on Medical Physics and Biomedical Engineering, Sydney, Australia, August 24-29, 2003.*

Montemagno, C.D., "Systemized Engineering of Biomotor Hybrid Devices," *Biomolecular Motors Annual Principal Investigators Conference, San Francisco, CA, August 19-20, 2003.*

Montemagno, C.D., "Integrated Massively Parallel Arrays of Stochastic Sensors (IMPASS)," *Moldice Principal Investigators' Kick-Off Meeting, July 30-31, 2003.*

Montemagno, C.D., "A Look Into the Future," *Small Talk 2003, July 13-16, 2003.*

Montemagno, C.D., "Nanotechnology, Biotechnology and Complexity Theory: Essential Tools for Engineering Hybrid Biotic-Abiotic Systems," *ASM Conference, New York, July 7-10, 2003.*

Montemagno, C.D., "Nanoengineering Embedded Functional Materials," *Supramolecules & Assemblies, Chemistry Of, Proctor Academy, Andover, NH, July 6- 11, 2003.*

Montemagno, C.D., "Nanotechnology, Biotechnology, and Complexity Theory: Essential Tools for Engineering Hybrid Biotic-Abiotic Systems," *NSF Workshop on Nanoscale Systems, Dynamics, and Control, Denver, CO, June 2003.*

Montemagno, C.D., "The Genesis of Engineered Intelligent Systems from the Machinery of Life," *Cell-Like Entity Symposium, Fairborn, OH, June 17, 2003.*

Montemagno, C.D., "Engineering with the Engines of Creation," *Intelligent Processing and Manufacturing of Materials (IPMM'03), Sendai, Japan, May 2003.*

Montemagno, C.D., *Nanotechnology and Life Science, Consulate General of Sweden, Santa Monica, CA, April, 2003.*

Montemagno, C.D., "The Genesis of Intelligent Systems from the Machinery of Life," *Thayer School of Engineering at Dartmouth College, New Hampshire, April 2003.*

Montemagno, C.D., "Nanobio Beyond the Hype," *Southern California Biomedical Council, Los Angeles, CA, March 2003.*

Montemagno, C.D., *American Society for Engineering Education (ASEE), Santa Monica, CA, March 2003.*

Montemagno, C.D., "The Genesis of Engineered Intelligent Systems from the machinery of Life". *International Forum on Nano- and Bio- Technology for Future Info-Communications, Osaka, Japan, March 2003.*

Montemagno, C.D., "The Genesis of Intelligent Systems from the Machinery of Life," *Frontiers of Grid Computing and Simulation at Nano-Bio Interface, Louisiana, March 2003.*

Montemagno, C.D., "Harnessing the Engines of Life: The Art and Science of Engineering Hybrid Nanofabricated Mechanical Devices," *The International Conference on Micro and Nano*

Systems 2002 (ICMNS), Kunming, China, August 11- 14, 2002.

Montemagno, C.D., "Nanobiotechnology: Creating Engineer Hybrid Living/Non- living Devices One Molecule at a Time," *The Nano Republic Conference*, Korn Hall, UCLA Anderson School of Business, July 17, 2002.

Montemagno, C.D., "The Creation of Engineering Hybrid Living/Non-living Devices," *UNSW – UCLA Biomedical Engineering Symposium*, Sydney, Australia, July 8-9, 2002.

Montemagno, C.D., "Energy Transduction Using Nanoscale Hybrid Devices," *Twentieth Symposium on Energy Engineering Sciences*, Argonne National Laboratories, Argonne, IL, May 20, 2002.

Montemagno, C.D., "Integrating Modern Biology with Modern Engineering," *First International Conference and School on Nanoscale/Molecular Mechanics*, Maui, Hawaii, May 15, 2002.

Montemagno, C.D., "Fantastic Voyage: Nanobiotechnology's Promise to 21st Century Medicine," *Micro & Nanotechnology in the Life Sciences Symposium*, Chesebrough Auditorium, University of Michigan, May 10, 2002.

Montemagno, C.D., "Nanobiotechnology Integrating Engineering with Modern Biology," *The Second International Symposium on Nanoarchitectonics Using Suprainteractions (NASI 2)*, UCLA, March 27, 2002.

Montemagno, C.D., "Convergence: Integrating Modern Biology with Engineering," *IBC USA's 7th Annual World Congress on Enzyme Technologies: Accelerating the Discovery, Versatility, and Commercialization of Enzyme Applications*, Palace Hotel, San Francisco, CA, March 4-6, 2002.

Montemagno, C.D., "Nanotechnology, Biotechnology and Complexity: Building Blocks for the Fabrication of Hybrid Living/Non-living Devices at the Micro and Nano Scales," *2002 NASA Cell Science Conference*, Palo Alto, CA, February 26-28, 2002.

Montemagno, C.D., "Nanobiotechnology: New Tools for Fighting Terrorism," *BioTTL Workshop*, Chantilly, VA, December 17-18, 2001.

Montemagno, C. D., "Engineering Nanomechanical Devices," *Centre National De La Recherche Scientifique*, Toulouse, FR, June, 2001.

Montemagno, C.D., "Energy Transduction Using Nanoscale Hybrid Devices," *20th Symposium on Energy Engineering Sciences*, Argonne National Laboratory, Argonne, Illinois, May 20-21, 2002.

Montemagno, C.D., "Convergence: Integrating Modern Biology with Modern Engineering," *1st International Conference and School on Nanoscale / Molecular Mechanics*, Outrigger Wailea Resort, Maui, Hawaii, May 12-17, 2002.

Montemagno, C.D., "Nanobiotechnology: Integrating Engineering with Modern Biology," *The 2nd International Symposium on Nanoarchitectonics Using Suprainteractions (NASI 2)*, UCLA Tom Bradley International Hall, March 26-28, 2002.

Montemagno, C.D., "Engineering Control into Fabricated Nanobiology Systems," *Molecular Motors and Bionanotechnology Session, AAAS Annual Meeting and Science Innovation Exposition*, Boston, MA, February 14-19, 2002.

Montemagno, C. D., "Biomolecular Motors: Engines for Nanofabricated Systems," *From*

Bandwidth to Biotech: New frontiers in science and engineering, San Mateo, CA, April 2001.

Montemagno, C. D., “Nanomachines: A Roadmap for Realizing the Vision,” *Cornell University ALS Alumni Forum*, Ithaca, NY, March 2001.

Montemagno, C. D., “Nanomachines: A Roadmap for Realizing the Vision,” *Chemistry, Physics and Biology at the Nanoscale*, 15th Annual CFMR Symposium, East Lansing, MI, March 2001.

Montemagno, C. D., “Biomolecular Motors: Engines for Nanofabricated Systems,” *XVth International Winterschool on Electronic Properties of Novel Materials*, Kirchberg/Tirol, Austria, March 2001.

Montemagno, C. D., “Engineering Life into Nanofabricated Systems,” *The 20th Annual Meeting of the Society for Physical Regulation in Biology and Medicine*, Charleston, S.C., January 2001.

Montemagno, C. D., “BioMolecular Motors,” *ASME Workshop on Beyond Micro Device Engineering: Nanotechnology*, Washington, D.C., December 2000.

Montemagno, C. D., “The Creation of Hybrid Living/Non-Living Nanomechanical Devices,” *DARPA Workshop: Nanotechnology for Biodetection/Bioassay and Delivery of Therapeutics to Individual Cells*, Scottsdale, AZ, December 2000.

Montemagno, C. D., “Engineering Life into Nanofabricated Devices,” *American Vacuum Society 47th International Symposium*, Boston, MA, October 2000

Invited Presentations

Montemagno, C.D., “The Convergence of Modern Biology with Modern Engineering to Enable Future Health Care Solutions,” APAO 2017, Singapore, March 1 -5, 2017.

Montemagno, C.D., “Nanotechnology, the Future of Matter Manipulation,” Canadian Biomaterials Society, Alberta Student Chapter event, University of Alberta, January 27, 2017.

Montemagno, C.D., “Enabling Networked Precision Agriculture by Thinking Small,” Canola Innovation Day, Saskatoon, SK, December 1, 2016.

Montemagno, C.D., “Getting to “Mind”: The Foundation Development of a Biological Neuronal Ionic Computer,” Machine Learning Seminar Series, Centre for Machine Learning, University of Alberta, November 25, 2016.

Montemagno, C.D., “Small Things Offer Big Promise,” Calgary Rotary West Luncheon Seminar, Calgary, AB, August 26, 2016.

Montemagno, C.D., “Small Things Offer Big Promise,” IC-Impacts 2016 Summer Institute, University of Alberta, May 31, 2016.

Montemagno, C.D., “Small Things Offer Big Promise,” 3rd Annual Alberta Nano Research Symposium, University of Alberta, May 26, 2016.

Montemagno, C.D., “Biological Machines, New Tools for a New Technology,” University of Alberta Department of Cell Biology Seminar Series, April 15, 2016.

Montemagno, C.D., “NEXGEN Restorative Health Care Thru Synthetic Biology and Nanoscience,” C5MPT Summit Speaker Series, University of Alberta, April 5, 2016.

Montemagno, C.D., “Engineering Energy Transduction Systems using the Engines of Creation,” C5MPT Summit Speaker Series, University of Alberta, March 31, 2016.

Montemagno, C.D., “Thinking Small to Define a Big Future,” University of Toronto, March 30, 2016.

Montemagno, C.D., “Thinking Small to Define a Big Future,” University of Alberta Nanotechnology Group, SmallTalk monthly seminar, October 2, 2015.

Montemagno, C.D., “Engineering Living Materials Thru the Precision Assembly of Biologically Functional Abiotic/Biotic Materials,” CINT 2015, Santa Fe, NM, September 21-22, 2015.

Montemagno, C.D., “Crossing the Threshold for Regenerative Medicine,” Think Tank Forum 2015, The Glaucoma Foundation, New York City, NY, September 18, 2015.

Montemagno, C.D., “The Nexus of Energy, Water, Health and Food: Exercising a New Paradigm to Solve Global Quality of Life Challenges”, CC3DMR 2015, Buson, Korea, June 15-19, 2015.

Montemagno, C.D., “The New Frontier: Active Engineering of the Sub-Pore Scale Environment,” Interpore 2015, Padua, Italy, May 18 – 21, 2015.

Montemagno, C.D., “Giving Life to Man-Made Materials with the Engines of Creation,” Membrane Protein Research Group, Department of Biochemistry, Faculty of Medicine & Dentistry, University of Alberta, May 14, 2015.

Montemagno, C. D., “Inserting Life Into Engineered Devices and Materials,” Ohio State University invited lecture, April 24, 2015.

Montemagno, C.D., “Targeting nanoparticles to treat blindness,” 30th APAO Annual Congress 2015, Guangzhou, China, April 1 – 4, 2015.

Montemagno, C.D., “Molecular Recognition and Assembly: A New Tool for Solving Grand Societal Challenges,” RNA Nanotechnology Gordon Research Conference, Ventura, CA, February 5, 2015.

Montemagno, C.D., “The Nexus of Energy, Water, Health and Food: Exercising a New Paradigm to Solve Global Quality of Life Challenges,” Canadian Biomaterials Society lecture, Edmonton, AB, January 27, 2015.

Montemagno, C.D., “Opportunities for Engineering Life Processes to Improve Production and Sustainability through the Application of Nanotechnology,” ABIC 2014, Saskatoon, SK, October 8, 2014.

Montemagno, C.D., “Thinking Small to Solve Big Problems: Exercising a New Paradigm to Solve Global Quality of Life Challenges,” George Washington University, Washington, DC, October 3, 2014.

Montemagno, C.D., “Looking at Nature and Thinking Small: A new solution to the big carbon emissions problem,” Alberta Innovates Bio Solutions Biological Solutions Forum, Edmonton, AB, October 1, 2014.

Montemagno, C.D., “Nano-Biotechnology a New Tool for Changing the Landscape of Environmental Remediation,” Alberta Innovates Bio Solutions Biological Solutions Forum, Edmonton, AB, October 1, 2014.

Montemagno, C.D., “The Nexus of Energy, Water, Health and Food: Exercising a New Paradigm to Solve Global Quality of Life Challenges,” Yonsei University, Seoul, Korea, August 29, 2014.

Montemagno, C.D., “Engineering Enhanced Biofunctional Membranes for Environmental Restoration and Water Purification,” IUMRS-ICA 2014, Fukuoka, Japan, August 26, 2014.

Montemagno, C.D., “Next Generation Tools for the Design, Control, and Study of Porous Media,” InterPore 2014, Milwaukee, Wisconsin, May 30, 2014.

Montemagno, C.D., “The True Fantastic Voyage - Nature, Nanotechnology and Networks Enabling 21st Century Medical Engineering,” Calgary Telus Spark Adults Only “Your Inner Engineer” Night, May 8, 2014.

Montemagno, C.D., “Engineering Sentient Systems Using Synthetic Biology,” geekStarter Workshop, Alberta Innovates – Technology Futures, Edmonton, Alberta, March 19, 2014.

Montemagno, C.D., “Nature, Nanotechnology and Networks: Leveraging Functional Manufacturing to Solve Society’s Grand Challenges,” 3D Printing Workshop, University of Alberta, Edmonton, Alberta, March 28, 2014.

Montemagno, C.D., Nanotechnology Accelerator Presentation to the Alberta Innovates Bio Solutions Board, February 26, 2014.

Montemagno, C.D., “Nature, Nanotechnology, and Networks: A Toolkit for Solving Society’s Grand Challenges,” BMMP-14, Takayama, Japan, January 27, 2014.

Montemagno, C.D., “Breaking Boundaries with Nanotechnology,” Breaking Boundaries “Adults-Only,” Telus Spark Centre, Calgary, Alberta, December 12, 2013.

Montemagno, C.D., “Next Generation Translational Medicine Using Bio-Nanotechnology,” ACAMP Health & Medical Seminar, Edmonton, Alberta, December 5, 2013.

Montemagno, C.D., “Engineering Metabolism into Smart Materials for the Creation of Speciality Chemicals,” 4th Annual Biorefining Conversions Network Strategic Retreat, Banff, Alberta, November 7, 2013.

Montemagno, C.D., “NanoAccelerator Strategy – Unique nano capabilities in Alberta,” Alberta nanoConnect 2013, Edmonton, Alberta, October 22, 2013.

Montemagno, C.D., “Biomimetic approaches for treating cataracts,” 20th Annual Glaucoma Foundation Optic Nerve Rescue and Restoration Think Tank, New York, NY, September 20, 2013.

Montemagno, C.D., “Creating the Future with Life and Chaos,” ChinaNano 2013, Beijing, China, September 5, 2013.

Montemagno, C.D., “Engineering Life,” *Life of the Mind: Interdisciplinary conversations with UC faculty*, University of Cincinnati, Cincinnati, OH, April 19, 2011.

Montemagno, C.D. “The role of Nanoscience in Green Chemistry,” *NSF sponsored project and research cluster: Engineering Platforms for Exploring Cellular and Molecular Signaling Processes*, University of Louisville, Louisville, KY, Feb. 16, 2011.

Montemagno, C.D., “Cytomimetic Nanomaterials for Next Generation Sustainable Living,” *Thermodynamics and Kinetics in Molecular Motors Conference*, Santa Fe, NM, May 21, 2010.

Montemagno, C.D., "Green chemistry-innovations and applications," *International Conference on Nanoengineering and Nanosystems*, Edinburgh, Scotland, April 15, 2010.

Montemagno, C.D., "Energy, environment and efficiency: Addressing the engineering Trinity by capturing life in materials," *237th ACS National Meeting and Exposition*, Salt Lake City, UT, March 24, 2009.

Montemagno, C.D., "Engineering Novel Diagnostic Modalities and Implantable Cytomimetic Nanomaterials for Next-Generation Medicine," *American Transplant Congress*, Toronto, ON, Canada, June 1, 2008.

Montemagno, C.D., "Engineering Education in the 21st Century," *OSPE's 2008 Spring Continuing Professional Development Conference*, Cincinnati, OH, May 16, 2008.

Montemagno, C.D., "Engineering the Future," *Bridges to Engineering Research – 2020 Foundation for National Partnerships*, workshop sponsored by NSF, Greensboro, NC, March 14, 2007.

Montemagno, C.D., "Nanotechnology: Basic Concepts, Current Status, Future Promises," *2007 Annual Meeting of the American Academy of Ophthalmology*, New Orleans, LA, November 11, 2007.

Montemagno, C.D., "Engineering life into materials," *234th ACS National Meeting & Exposition*, Boston, MA, August 19, 2007.

Montemagno, C.D., "Building Life into Materials," 2007 United States Public Health Service Scientific and Training Symposium, Cincinnati, OH, June 5, 2007.

Montemagno, C.D., "Nanotechnology: Basic Concepts, Current Status, Future Promises," *ARVO Annual Meeting*, Ft. Lauderdale, FL, May 8, 2007.

Montemagno, C.D., "Engineering and Fabricating a Hybrid Biotic/Abiotic Biological Computer," Dept. of Materials Science and Engineering at Iowa State University Centennial Anniversary Distinguished Lecture Series, Ames, IA, January 18, 2007.

Montemagno, C.D., "Building Life into Materials," *UT Symposium on NanoBio Integration, Nanobio-Tokyo 2006*, Tokyo, Japan, December 6, 2006.

Montemagno, C.D., "How I Would Approach Making an Implantable Intraocular Pressure Sensor," *The Glaucoma Foundation's Thirteenth Annual Think Tank*, New York, NY, September 15, 2006.

Montemagno, C.D., "Engineering and Fabricating a Hybrid Biotic/Abiotic Biological Computer," *SBE's Second International Conference on Bioengineering and Nanotechnology*, Santa Barbara, CA, September 6, 2006.

Montemagno, C.D., "Life as a Rosetta Stone for 21st Century Engineering Innovation," *Creating the Magic Celebration*, Miami Valley Innovation Center, Ross, OH, August 22, 2006.

Montemagno, C.D., "Engineering and Fabricating a Hybrid Biotic/Abiotic Biological Computer," *IEEE-Nano 2006*, Cincinnati, OH, July 20th, 2006.

Montemagno, C.D., "Nanotechnology – A Truly Minimally Invasive Technology," *International Society for Minimally Invasive Cardiothoracic Surgery (ISMICS) Annual Scientific Meeting*, San Francisco, CA, June 10, 2006.

Montemagno, C.D., "Engineering Life-Like Functionality into Materials and Systems Using Polymeric Biomimetic Membranes," *MPI-P (Max Planck Institute) Membrane Workshop*, SchloB Ringberg in Bavaria, Germany, September 19th, 2005.

Montemagno, C.D., "Nanobiosensors, Nanobots and Nerve Regeneration," *Twelfth Annual Glaucoma Foundation Optic Nerve Rescue and Restoration Think Tank*, New York, NY, September 17th, 2005.

Montemagno, C.D., "Complexity and Emergence as Design Principles for Engineering Functionality in Nanoscale Systems," *ACS 2005 Fall Symposium*, Washington, D.C., August 30th, 2005.

Montemagno, C.D., "Getting to Mind," *ICAM NANO Frontiers of Nanoscience*, Boston, MA, August 26, 2005.

Montemagno, C.D., "NEXGEN Restorative Healthcare thru Synthetic Biology and Nanoscience," *46th AAPM Annual Meeting*, Seattle, WA, July 27th, 2005.

Montemagno, C.D., "Sensing with Artificial Life," *3rd Annual Federal Bio-Chemical Detection Symposium*, Tyson's Corner, VA, July 15th, 2005.

Montemagno, C.D., "Getting to Mind," *Le High University Seminar Series*, May 24, 2005.

Montemagno, C.D., "Using Synthetic Biology to Engineer Sentient Material Systems," *DePaul University School of Computer Science, Telecommunications and Information Systems*, May 6, 2005.

Montemagno, C.D., "Artificial Organelles; A Next Generation Technology for Next Generation Therapeutics," *Cardiac Muscle Society Dinner*, Long Beach CA, February 13th, 2005.

Montemagno, C.D., "Engineering Life Into Matter," *USC Chemical Engineering Department Seminar*, November 15th, 2004.

Montemagno, C.D., "Engineering Life Into Supra-Molecular Assemblies," *Case Western Reserve University of Chemistry Department Colloquium*, November 11th, 2005.

Montemagno, C.D., "Integrative Technology: A New Approach for the Engineering of Emergent "Intelligent" Systems and Materials," *Indiana University Biocomplexity Institute Physics Colloquium*, November 3rd, 2004.

Montemagno, C.D., "Integrative Technology: A New Approach for the Engineering of Emergent "Intelligent" Systems and Materials," *University of California, Irvine - BioMINT Laboratory Seminar Series*, October 21, 2004.

Montemagno, C.D., "Integrative Technology: A New Approach for the Engineering of Emergent "Intelligent" Systems and Materials," *Arizona State University Biomolecular Nanotechnology Program Seminar*, Tucson, Arizona, September 23rd, 2004.

Montemagno, C.D., "Nanoengineering with the Machinery of Life," *Quantum Theory Project, 43rd Sanibel Symposium*, University of Florida, February 2003

Montemagno, C.D., "Biomotors for Drug Delivery," *AAAS Meeting*, Denver, CO, February 2003

Montemagno, C.D., "Nano-Engineering Embedded Functional Materials," *Biomimetic Materials Processing (BMMP-3)*, Nagoya, Japan, 2003

Montemagno, C.D., "Engineering with the Engines of Creation," *Electroactive Polymer Gels*,

Biopolymers and Muscles I Symposium; First World Congress on Biomimetics and Artificial Muscles, New Mexico, December 2002

Montemagno, C.D., "Nanobiotechnology: The Convergence of Engineering with Modern Biology," *Biocomplexity Workshop III*, University of Notre Dame, November 8-10, 2002.

Montemagno, C.D., "Engineering with the Engines of Creation," *Caltech Aeronautics Seminar*, November 4th, 2002.

Montemagno, C.D., "Nanotechnology Comes of Age," *12th Annual Irwin M. Arias, M.D. Symposium, Bridging Basic Science and Liver Disease*, Hynes Convention Center, Boston, MA, October 31, 2002.

Montemagno, C.D., "Linear Motor-Molecule Biomimetic Muscles," *DARPA Biomolecular Motors Kick-Off Meeting 2002*, Arlington, VA, October 21-22, 2002.

Montemagno, C.D., "Engineering with the Engines of Creation." *NINT Workshop, Frontiers of Integration*, University of Alberta, October 2002.

Montemagno, C.D., "Integrating Modern Biology with Physics," *Molecular Biophysics Group, Delft Institute of Microelectronics and Submicron Technology*, Tu Delft Technische Universiteit Delft, June 2002.

Montemagno, C.D., "Nanoscale Biomedical Systems," *CNSI Venture Capital Partnership Meeting*, June, 2002.

Montemagno, C.D., "Convergence of Nanobiotechnology with 21st Century Medicine," *Cardiology Grand Rounds*, Borun Foundation, UCLA, April 18, 2002.

Montemagno, C.D., "Convergence: Integrating Modern Biology with Modern Engineering," *Departmental Colloquia, University of Calgary*, April 2002.

Montemagno, C.D., "Convergence: Integrating Modern Biology with Modern Engineering," *Bioengineering Seminar Series*, CalTech, April 2002.

Montemagno, C.D. "Measurement and Modification of the Engineering Properties of TF1 ATPASE Relevant to its Integration with Nanoscale Electro-Mechanical Devices," *Biophysical Society 46th Annual Meeting*, February 23-27, 2002.

Montemagno, C.D., "Integrative Technology Engineering Emergent Behavior Into Materials and Systems," *The Department of Physics & Astronomy Colloquium*, UCLA, February 5, 2002.

Jiang, X., Schmidt, J.J., Montemagno, C.D., "Force Tolerances of Hybrid Biological Nanomachines," *46th Annual Meeting of Biophysical Society*, San Francisco, CA, February 23-27, 2002.

Montemagno, C.D., "Harnessing the Engines of Life: The Art and Science of Engineering Hybrid Nanofabricated Mechanical Devices," *"CHIPS to HITS," IBC USA's 8th Annual International Microtechnology Event*, San Diego, CA, October 2001

Montemagno, C. D., "Engineering and Production of Protein Molecular Motors and their Application to Nanomedicine," *Nanocomposites et Nanomachines 26th Journal de l'Observatoire Francais des Techniques Avances*, Paris, FR, June 2001.

Montemagno, C. D., "Biophotonic Fueling of Biomolecular Motor Powered Nanomechanical Devices," *19th Symposium on Energy Engineering Sciences*, Argonne, IL, May 2001.

Montemagno, C. D., "Nanomachines: A roadmap for realizing the vision," *NanoSpace 2001-Exploring Interdisciplinary Frontiers*, Galveston Island, TX, March 2001.

Montemagno, C. D., "The Creation of Hybrid Living/Non-Living Nanomechanical Devices," *Anatomy and Structural Biology Seminar Series*, Albert Einstein College of Medicine of Yeshiba University, Bronx, NY, March 2001.

Montemagno, C. D., "Engineering Life into Nanofabricated Systems," *Mechanical Engineering Seminar Series*, University of California at Los Angeles, Los Angeles, CA, February 2001.

Montemagno, C. D., "Engineering Life into Nanofabricated Systems," *Mechanical Engineering Seminar Series*, Yale University, New Haven, CT, February 2001.

Montemagno, C. D., "Engineering Life into Nanofabricated Systems," *Nanobiotechnology Mechanical Engineering Seminar Series*, Northwestern University, Evanston, IL, January 2001.

Montemagno, C. D., "Nanomachines: A roadmap for realizing the vision," *Biology and Engineering Seminar*, University of California at Santa Barbara, Santa Barbara Ca., January 2001.

Montemagno, C. D., "Engineering Life into Nanofabricated Systems," *Gordon Research Conference on Electrochemistry*, Ventura, CA, January 2001.

Montemagno, C. D., "Engineering Life into Nanofabricated Systems," *Celebrating Nanotechnology at Cornell*, Ithaca, NY October 2000.

Montemagno, C. D., "Nanoengineering with BioMolecular Motors," *DARPA Workshop on Biological Motors*, Washington, D.C., October 2000.

Montemagno, C. D., "Engineering Life into Nanofabricated Systems," *Naval Research Laboratory Chemistry Colloquium*, Washington, DC, October 2000.

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