

## **Professor Dr. James Kazimierz Gimzewski FRS FReng PhD PhD (hc) DSc (hc)**

University of California, Los Angeles  
Department of Chemistry & Biochemistry

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Dr. Gimzewski is a distinguished professor of Chemistry at the University of California, Los Angeles. He joined the Department of Physical Chemistry in 2001. He was a founder of the Nano Pico Characterization Lab in the California NanoSystems Institute (CNSI) since 2007. He is Scientific Director of the UCLA Art|Sci Center where he was involved in running programs at the intersection of art and science for 15 years. His current interests are in atomically precise manufacture (APM) using robotic nanotechnology, the use of atomic switch networks for neuromorphic artificial intelligence hardware, and exploration of vacuum fluctuations for space propulsion. Over the past 20 years his group have researched into mechano-biology and mechano-chemistry as well as using ultra-resolution Scanned Probe Microscopes applied to APM using designer molecular systems and biomaterials. His work extends into translational medical research on cells, bacteria and nanoscale biological structures such as actin, DNA and exosomes. Dr. Gimzewski collaborations are extensive involving the UCLA Medical and Dental Schools and the Molecular Biology Institute. During his time at UCLA, he has been involved in projects that use nanoscale science and technology ranging from the generation of X-rays, ions and nuclear fusion using pyroelectric crystals, optical interferometry applied to cell mechanics and ultrahigh vacuum Scanning Tunneling Microscopy (STM) of single molecules and graphene. He developed a new form of computer based on self-organized critical phenomena in atomic switching systems in collaboration with National Institute of Materials Science, (NIMS) in Tsukuba, Japan, as P.I. and Satellite Co-Director of their WPI Materials Nanoarchitectonics (MANA) Program. His other research concerns the use of atomically precise manufacture. Here working with synthetic chemists and theory, designer molecules are being used for 3-dimensional fabrication of atomically perfect nanostructures for science and technology at the ultimate limits of fabrication. From 2003 to present he is instrumental in the development, test, and potential application of the technologies at UnLAB Inc. in their development efforts, working with the Sandia National Lab CINT and Technion Israel Institute of Technology. Prior to joining the UCLA faculty, he was a group leader at IBM Zürich Research Laboratory, Switzerland, where he conducted groundbreaking research in nanoscale science and technology for over two decades. During this time, he pioneered research on electro-mechanical and imaging and positioning of single atoms and molecules using the STM where he was the first persons to image individual molecules. His accomplishments include the first STM-based fabrication of molecular suprastructures at room temperature using mechanical forces to push molecules across surfaces, the discovery of single molecule rotors and the development of new micromechanical sensors based on nanotechnology, which explore ultimate limits of sensitivity and measurement.

Dr. Gimzewski has been acknowledged for his research receiving the Institute of Physics “Dudell Prize and Medal”, the “Feynman Prize in Nanotechnology”, “Wired 25” Award and the “Discover Award” for emerging fields.

He has two Honorary Doctorates from the University of Strathclyde DSc.hc and the Universite de la Mediterranee, Aix-Marseille II, PhD hc. Dr Gimzewski is an elected Fellow of the Royal Society (FRS London) and the Royal Academy of Engineering, (FREng).

## Teaching

Professor Gimzewski has 25 years of undergraduate, graduate and postgraduate teaching and mentorship at UCLA. He has mentored over 20 PhD students in his laboratory. In addition to teaching standard courses in chemistry, he has 15 years of teaching an honors class he developed called “Introduction to Nanotechnology, 174” where students from the arts and humanities as well as science and engineering can look at nanotechnology from its many perspectives in electronics, medicine, energy and materials as well as social, technological, ethical and environmental implications. This course involves students creating a book collaboratively. He also has created, continuously developed and taught “Environmental Chemistry 104” which looks at the historical, social and economic impacts of climate change in addition to the science and technology behind pollution, global warming. In the arts, he has presented innumerable lectures to artists on nanotechnology, plastics and environment as well as Art|Science and its role in the future. Gimzewski has also presented some 500 invited lectures at international conferences in a variety of disciplines as well as science and mentored a number of Fulbright fellows from the arts, sciences and humanities from various countries including Nigeria, Brazil and Ukraine.

## Metrics

Hirsch h-index , 97 43059 citations,  
ORCHID ID: <https://orcid.org/0000-0003-4333-6957>

## Education and Degrees

1977            PhD. in Physical Chemistry, University of Strathclyde, Glasgow, Scotland, UK  
                  Thesis Title: “The Reaction of Gaseous Molecules with Metal Surfaces Studied by X-ray Photoelectron Spectroscopy”  
1974            B.Sc. (Hons) in Pure Chemistry, Upper Second, University of Strathclyde, Glasgow, Scotland, UK

## Professional Positions

2016-2024      Chair of the Faculty Advisory Committee, California NanoSystems Institute, UCLA  
2001-present   Distinguished Professor of Chemistry, University of California, Los Angeles  
2007-2022      Principal Investigator, International Center for Materials Nanoarchitectonics (MANA), NIMS, Japan  
2008-2022      Co-Director, MANA International Satellites, International Center For Materials Nanoarchitectonics (MANA) sponsored by NIMS, Japan

2003-2016	Faculty Director, California NanoSystems Institute, Nano & Pico Characterization Lab
2008-present	Scientific Director, UCLA Art Sci Center
2002-2006	Co-Director of Center for Social Interfaces & Networks Advanced present Programming Simulations & Environments (SINAPSE) UCLA
2002-2006	CMISE- Co-Investigator Institute for Cell Mimetic Space Exploration
1983-2001	Research Staff Member and Project Leader in Nanoscale Science, IBM Research 2001 Division, IBM Zürich Research Laboratory Ruschlikon, Switzerland
1979-1983	Post-Doctoral Research Fellow: Plasma-Surface Interactions Group, Institute of Inorganic Chemistry, University of Zürich, Switzerland
1977-1979	Post-Doctoral Research Fellow: The Radiation Center, Oregon State University, Corvallis, Oregon

### **Invited Academic Positions**

2021-2022	Visiting professor at Kyushu Institute of Technology, Kyushu, Japan
2013-2015	Professor of Physics, The Bristol Centre for Nanoscience and Quantum Information (NSQI) and Physics Department, University of Bristol
2010-2012	Senior Fellow in Resident, Institut Méditerranéen de Recherches Avancées (IMéRA)
2009	Carnegie Centenary Professor in the Physics Department, University of Strathclyde, Glasgow, Scotland
2007	Benjamin Meaker Visiting Professor, Department of Physics, Bristol University, Bristol, UK
2007	University Professor 1 au 3i echelon, de la premiere classe, Dept. of Physics, University Aix-Marseille II, France (visiting)
1997-1999	Visiting Professor, school of Manufacturing Science, Cranfield University, Cranfield, Bedfordshire, UK
1995	Invited Guest Scientist (STA Fellow) International Research Fellowship Science and Technology Agency (STA), National Research Institute for Metals, Tsukuba, Japan
1989-1991	University Professor 1 au 3i echelon, de la premiere classe, Dept. of Physics, University Aix-Marseille II, France (visiting)

### **Honors**

2020	Elected Distinguished Scientist, CAS President's International Fellowship. Initiative (PIFI), Chinese Academy of Science
2010	Honorary Doctorate, DSc.hc University of Strathclyde, Glasgow, Scotland
2009	Elected Fellow of the Royal Society, FRS, of London, UK
2009	Institute of Electronic Technology Award to honor 10 Millionth Record Inspection, London, UK
2008	Dr. Honoris Causa, PhD hc Universite de la Mediterranee, Aix-Marseille II, presented by the Ministry of Foreign Affairs, France

- 2001 Elected Fellow Royal Academy of Engineering, (FREng), London, United Kingdom July 9, 2001
- 2001 Dudell Medal and Prize for contribution to Nanoscale science, Institute of Physics, Savoy Hotel, London.
- 2000 IBM Sixth Invention Achievement Plateau Award
- 1998 The 'Wired 25' Award, Wired magazine, The Paramour, Los Angeles
- 1997 Awarded the 1997 Feynman Prize in Nanotechnology for Experimental Work Feynman Prize Committee and the Foresight Institute, Palo Alto,
- 1997 The Discover Award for Emerging Fields (Nanotechnology) Epcot
- 1997 Awarded status of "Founder" of the Institute of Nanotechnology, UK
- 1997 IBM Outstanding Innovation Award in appreciation for Engineering Single Molecules
- 1996 Invited STA Fellow, National Institute for Metals (NRIM), Tsukuba, Japan
- 1995 Elected Fellow of the Institute of Physics (FinstP), London, UK

## Conference Chairs

- Co-Chair "Mechanobiology Symposium" July 28-31, 2015; Tsukuba, Japan
- Chair "AFM BioMED Conference" December 13-18, 2014; San Diego, California
- Co-Chair "Seeing at the Nanoscale VII" July 28-31, 2009; Santa Barbara, California
- Chair "The 2<sup>nd</sup> International Symposium on Nanoarchitectonics Using Suprainteractions" (NASI 2) March 2002, Los Angeles, CA
- Co-Chair "The First E.L.BA.- Foresight Conference on Nanotechnology" April 14-16, 1999;  
Rome, Italy
- Chair 3<sup>rd</sup> International Symposium on Advanced Physics "APF-3", Tsukuba, Japan Feb. 18-20 1998
- Co-Chair Phantoms Industrial Workshop "Nanotechnology- A Challenge to Industry in the New Millennium", Zürich, Switzerland October 1-2 1998
- Co-Director NATO ARW on Nano-age Mechanics, Loch Lomond, Scotland, October 1-4 1995
- Co-Director NATO ARW in the Ultimate Limits of Fabrication and Measurement, Cambridge, UK April 5-8, 1993

Co-Chair Workshop on Fullerenes, IBM Zürich Research Laboratory, Ruschlikon, Switzerland October 2, 1992

Co-Organizer Europhysics Industrial Workshop EIW-8, “Nanometer-Scale Methods in Technology and Industry,” Davos, Switzerland, August 18-21 1991

### **Conference Organization**

Member and Conference Organizer for Atomic Precision for Medical Applications Workshop, Hosted by Foresight Institute, San Jose, California, May 2015

Member of the Scientific Advisory Board of the Nobel Symposium on Controlled Nanoscale Motion in Biological and Artificial Systems, Backaskog, Sweden, June 2004-2005

Member of the international scientific advisory committee for the 7<sup>th</sup> International Conference on Atomically Controlled Surfaces, Interfaces and Nanostructures (ACSIN-7) Nara, Japan, November 16-20, 2003

Member of the scientific advisory committee for “Fluctuation-driven Work and Transport in Physics, Biology and Chemistry, Santa Fe, New Mexico, June 1-4, 2003

Member of the Organizing Committee for “Toward Molecular Electronics,” Srem, Poland, June 23-28, 2003

Member of the International Program Committee of “Toward Molecular Electronics” Poznan, Poland, July 5-10, 1999

Member of the Program Committee of the 10<sup>th</sup> International STM Conference (STM '99) Seoul, Korea, July 18-23, 1999

Member, International Program Committee: 9<sup>th</sup> Int'l Conf. on Production Engineering, Osaka, Japan, August 30-September 1, 1999

Chairperson, 3<sup>rd</sup> International Symposium on Advanced Physical Fields “APF-3”, Tsukuba, Japan, Feb. 18-20, 1998

Session Chairperson: 36<sup>th</sup> IUPAC Congress, Geneva, Switzerland, August 17-22, 1997

Member of the International Program Committee: 1<sup>st</sup> Int'l Symp. Scanning Probe Spectroscopy and Related Methods “SPS '97,” Ponzan, Poland, July 15-18, 1997

Session Chairman and Panel Discussion Member: Japanese-Swiss Science Seminar: Nanoscience-The Impact of Scanning Probe Microscopy, Ascona, Switzerland, December 1996

Session Chairman: 10<sup>th</sup> Toyota Conference on Atomic, Molecular and Electronic Dynamics Processes on Solid Surfaces, Shizuoka, Japan, November 1996

Session Chairman: 1<sup>st</sup> International Symposium on Advanced Physical Fields, Tsukuba, Japan March 1996

Member International Program Committee, and Session Chairman: 15<sup>th</sup> European Conference on Surface Science “ECOSS-15.” Lille, France, September 4-8, 1995

Member of the Scientific and Selection Committee, the Advisory Committee, and Session Chairman, NATO ARW on Nanoscale Science “Chemical, Structural and Electronic Analysis of Heterogeneous Surfaces on Nanometer Scale,” Trieste, Italy, April 24-26, 1995

Session Chairman of “Materials” and invited speaker at the European Colloquium on Near-Field Microscopy, Dijon, France, June 23-25, 1994

Session Chairman: Workshop on Photons and Scanning Probe Microscopies, University of Constance, Germany, July 20-22, 1992

Member of Program Committee and Session Chairman: 1991 STM Conf. “Ten years of STM,” Interlaken, Switzerland, August 12-16, 1991

Invited Discussion Panel Member: “Recent Trends in Optical Technology,” 15<sup>th</sup> Cong. Int’l Commission for Optics “Optics in Complex Systems,” Garmisch-Partenkirchen, Germany, August 5-10, 1990

## **Professional Organizations and Advisory Boards**

Member of the “Feynman Prize” selection committee 2001- to date

UnLAB Inc conduct research to develop, mature and transition breakthrough technologies that could have a major positive impact on the planet, people, and the biome 2021-to date. 2025 -2026 - NSF Phase 1 SBIR, “Fluctuation Flow Propulsion”. 2023 -2024 - Limitless Space Institute “Asymmetric Potential Vacuum Fluctuation Forces”. 2020 - 2021 - DARPA/DSO “Quest for Undiscovered Energy Storage and Thrust - Non-equilibrium Vacuum Fluctuation Forces”

Member of the INL International Nanotechnology Laboratory, International Research & Technology Advisory Board. Intergovernmental Organization, Braga, Portugal 2019- to 2023.

Member, Scientific Advisor, Science and Creativity Project, Studio 360 with Kurt Anderson, WNYC, New York Public Radio, June 11-12, 2015-2016

Member, Evaluation Committee for Opportunity of New Fellows, Institute of Physics, IoP, UK 2008 to 2012

Member, Board of Directors, Maxtrix Sensors, Inc., Pleasanton, CA 2007-2018

Member, Advisory Board, Technolink Association, Los Angeles, CA 2005-2019.

Member, Evaluation Committee, Nanotechnology Panel, Research Council United Kingdom (RCUK) 2005 to 2011.

Honorary Member & New Knowledge Advisory Board, Planetary Collegium, University of Plymouth, UK, 2002-2019

Member, Scientific Advisory Board, Quantum Precision Instruments (QPI), Singapore, 2002-2010.

Member, Advisor for the Institute of Future Technology for Tokyo, 2008-2010

Member of the New York Academy of Sciences, 2005-2006.

Member of the Awards Committee for the International Society for Nanoscale Science, Computation and Engineering, 2005 to 2001

Member of the advisory board for the European Unions Sixth Framework Marie Curie Research Institute, Brussels, Belgium, 2004.

The Nanotechnology Policy Forum Advisory Board, Washington DC, 2003

Member of the Advisory Board, "Fluctuation-Driven Work and Transport in Physics, Chemistry, and Biology" Santa Fe, NM, 2003

Member of the Advisory Board of Veeco/ DI, Santa Barbara, California , 2002-2006.

Member of the Advisory Board of CMP Cientifica, Las Rozas Spain, 2002-2003.

Member of the Advisory Board of the Nanotechnology Opportunity Report (NOR), Department of Trade and Industry, UK 2001-2002

Member of the selection committee for the Feynman Prize in Nanotechnology, 1998 (Chairman), 1999, 2001, 2002

Member of the International Advisory Committee, Nanoarchitectonics Using Suprainteractions (NASI) 2000, 2001

Advisory Group of the International Review of Physics, UK Government, 2000, 2001

Member of the Advisory Group on Nanotechnology- Office of Science & Industry, Department of Trade and Industry, (DTI) London, UK, 2002-2001

Member of the Advisory Group to the International Review of Physics in the UK overseen by the EPSRC, PPARC, Institute of Physics and Royal Astronomical Society January 2000 to date.

Member of the nanotechnology Board of Advisors, University of Louisville and the University of Kentucky, 2000 to date.

Member of the Management Board of the EU 5<sup>th</sup> Framework Program project “ATOMS,” January 2000.

Member of the Management Board of the EU 4<sup>th</sup> Framework Program project “Nanowires” 1997-1999

Member Program Committee, 7<sup>th</sup> Foresight Conference on Molecular Nanotechnology, Santa Clara, California, October 17-22, 1999

Member Organizing Committee, Conf. on Electron and Electromagnetic Field in Nanometer Structures, Tsukuba, Japan, 2000-2001

Member of Management Board of the EU 5<sup>th</sup> Framework Program project “BUN: Bottom Up Nanomachines” January 2000.

Member of the Advisory Board of the Masters Level Training program in Nanoscale Science and Technology. Center for Self-Organizing Molecular Systems, Universities of Sheffield and Leeds, UK, June 1999

Member of the Scientific Council of DIMES, TU Delft, June 1999

Member of the scientific committee of the Fondazione E.L.B.A. (Electronics Biology Advanced) June 1999

Meeting of Experts, Nanotechnology for the 5<sup>th</sup> Framework Program representing DG12 DG3- ESPRIT, COST, SMT Biotechnology and Materials, European Commission, Brussels, Belgium, December 17, 1998

Member, Japanese government agency “Council of Science and Technology,” Tsukuba, Japan, November 20, 1998

Coordinator Group IV: Advanced Nanostructured Materials: Physics, Fabrication and Devices Engineering and Physical Sciences Research Council (EPSERC), United Kingdom Government, October 1998-2001

Member, Steering Committee of the National Research Program (NRP) “Molecular Devices and Supramolecular Structures,” Bern, Switzerland, August 19, 1998-2003

Invited referee for EC-ESPRIT long-term research proposals, Brussels, Belgium, September 29, 1997

Member of the Board, Institute of Nanotechnology, Glasgow, Scotland August 7, 1997 to date

Invited Member, Evaluation Committee for the NRIM Center of Excellence Development Project, National Research Institute for Metals (NRIM), Tsukuba, Japan

### **Dissertation Committees**

Ph.D. Examiner, Dept. of Physics, Bristol University United Kingdom, 2015

Committee Chair, dissertation of John Henry Sillin, University of California, Los Angeles, Department of Chemistry & Biochemistry, June 2012, “Neuromorphic hardware: the investigation of atomic switch networks as complex physical systems ”

Committee Chair, dissertation of Dayan Wickramranthe, University of California, Los Angeles, Department of Chemistry & Biochemistry, June 2012, “Fine Needle Elastography (FNE) for biomechanically determining needle insertion forces and quantitative assessment of intranodular heterogeneity in tissue mechanical properties”

Committee Chair, dissertation of Audrius Avizienis, University of California, Los Angeles, Department of Chemistry & Biochemistry, June 2012, “Controlling Complex Systems and Developing Dynamic Technology”

Committee Chair, dissertation of Sarayoot Eaimkhong, University of California, Los Angeles, Department of Chemistry & Biochemistry, June 2012, “Application of Nanotechnology in Biological Research: Diagnostics and Physical Manipulation”

Committee Chair, dissertation of Haider Rasool, University of California, Los Angeles, Department of Chemistry & Biochemistry, June 2012, “Development of a Scanning Probe Microscope and Studies of Graphene Grown on Copper”

Committee Chair, dissertation of Carlin Hsueh, University of California, Los Angeles, Department of Chemistry & Biochemistry, June 2011, “ Single Molecule Science for Personalized Nanomedicine: Atomic Force Microscopy of Biopolymer-Protein Interactions”

Committee Chair, dissertation of R.P.Wali, University of California, Los Angeles, Department of Chemistry & Biochemistry, June 2010, “Recent Advances in Surface Metrology with Applications Toward Autonomous Sensor Systems.”

Committee Chair, dissertation of Sarah Cross, University of California, Los Angeles, Department of Chemistry & Biochemistry, August 2008, "From Structure to Function and Health to Disease: Morphological and Nanomechanical Analysis of Single Cells, Organisms and Surfaces"

Committee Chair, dissertation of Adam Stieg, University of California, Los Angeles, Department of Chemistry & Biochemistry, August 2007, "From the Bottom Up: Instrumentation Design and Nanoscale Studies in Scanning Probe Microscopy."

Committee Chair, dissertation of Catherine Skibo, University of California, Los Angeles, Department of Chemistry & Biochemistry, April 2007, "Room- Temperature Scanning Tunneling Microscopy Studies of Organic Molecules on Copper Surfaces."

Committee Chair, dissertation of Lisa Wesoloski, University of California, Los Angeles, Department of Chemistry & Biochemistry, December 2006, "Low Temperature Scanning Tunneling Microscopy Studies of Surfaces and Molecules."

Committee Chair, dissertation of Keith O'Doherty, University of California, Los Angeles, Department of Chemistry & Biochemistry, September 2006, "Investigation of Ferroelectrics and Magnetic Particles for Novel Applications: X-Rays, cell mechanics, and Electron and Ion Beams.'

Committee Chair, dissertation of Joseph Norton, University of California, Los Angeles, Department of Chemistry & Biochemistry, June 2006, "Electronic Structures and reactions of organic materials for electronic and optical applications."

Committee Chair, dissertation of Andrew Pelling, University of California, Los Angeles, Department of Chemistry & Biochemistry, June 2005. "Observation of dynamic nano-architectonics and mechanics in single cells, social swarms and whole organism."

Ph.D. Examiner, Dept. of Pure and Applied Physics, University of Strathclyde, Glasgow, Scotland, UK, June 2001

Ph.D. Examiner, Dept. of Pure and Applied Physics, Queen's University of Belfast, Northern Ireland, June 14, 1994

Member of Jury Committee for the Ph.D. Thesis of M. Gu, University of Aix-Marseille II, Faculty of Sciences, Luminy, Marseille, France, July 6, 1993

Examiner of dissertation of T.M.H. Wong, Department of Engineering, University of Cambridge, UK, January 31, 1992

Member of the judging committee for the thesis of F. Jensen, Institute of Physics and Astronomy, Aarhus University, Aarhus, Denmark, March 2, 1992

## **Editorial Services to Scholarly Publications**

2015 Editorial Board Member, Journal of Analytical Research  
 2015 Editorial Board Member, Journal of Emergent Computing  
 2015 Editorial Board Member, International Journal of Unconventional Computing  
 2015 Editorial Board Member, International Journal of Pathology and Clinical  
 Research  
 2015 Editorial Board Member, International Journal of Oral and Dental Health  
 2014 Editorial Board Member, Chemical Sciences Journal  
 2013 Member of the Regional Board, Science and Technology of Advanced  
 Materials  
 2011 Member of the Regional Board, Science and Technology of Advanced  
 Materials  
 2005 Member of the Editorial Board of Nanomedicine  
 2004 Member of the Advisory Board of Nanotechnology and Precision Engineering  
 2003 Member of the Editorial Advisory Board of Technoetic Arts: a journal of  
 speculative research  
 2001-2003 Member of the Board of Reviewers of Science  
 2001-2005 Editorial Board, Journal of Nanoscience and Nanotechnology  
 2001-2003 Member of the Editorial Board of Nanotechnology  
 1997 Co-Editor of Microscopy  
 1997 Editorial Advisory Board of Microscale Thermophysical Engineering  
 1996 Member of the Editorial Advisory Board of Microscale Thermophysical  
 Engineering  
 1994 Co-Editor of Ultimate Limits of Fabrication and Measurement, NATO ASI  
 Series Vol. E: 292, Kluwer Acad. Publishers.  
 1994 Co-Editor of Prospects of the Limits of Fabrication and Measurement,  
 Philosophical Transactions of the Royal Society, Vol. 353(1703), pp. 279-393  
 (1997)

### **Consulting, Referee and Project Reviews**

King Fahd University of Petroleum & Minerals (KFUPM), National Science Foundation (USA); Israel Science Foundation; Australian Research Council. DEET; Engineering and Physical Sciences Research Council (EPSRC), UK; Swiss National Science Foundation; European Commission MEL ARI, Cancer Research Trust New Zealand, ARC Australia, WPI Initiative Secretariat, Japan Society for the Promotion of Science (JSPS). Veeco Instruments, USA; FEI Co.; Lockheed Martin Corporation Skunk Works, on Morphing structures, and Nuclear Fusion reactor project, Lockheed Martin Corporation Fort Worth on Direct Robotic Manufacture using CNT, UnLab on Vacuum Fluctuations for Space Propulsion, DARPA QUEST program, Colgate Palmolive on oral bacteria, Johnson and Johnson on Biofilms

#### Expert Witness

Nanoscale and Technology Outlook: 20 Years, UK Government, Dept. of Trade and Industry, London, UK, September 28, 1999

#### Reviewer

Nature, Science, Langmuir, Physical Review Letters, Chemical Physics Letters, Applied Physics Letters, as well as other scientific journals.

## **Exhibitions**

January 14, 2015, “Brainstorming: Synesthesia”, SONOS Sound Studios, Los Angeles, California

April 4, 2013, “Duality”, UCLA Art|Sci Center Gallery, California Nanosystems Institute at University of California, Los Angeles, California

March 22- May 6, 2012, “Morphonano”, Beall Center for Art + Technology at University of California, Irvine, California

September 22, 2011- March 25, 2012, “The Value of Water,” The Cathedral Church of Saint John the Divine, New York, NY.

May 27-September 25, 2011, New York Electronic Art Festival, St. Cornelius Chapel, Governor’s Island, New York.

May 2011, “Blue Morph” St. John’s Cathedral, Gdansk, Poland.

March 31-April 12, 2011 “Blue Morph,” Rensselaer Polytechnic Institute, Troy, New York.

October 25-29, 2010 “Blue Morph,” ACM International Conference, Florence, Italy.

October 15, 2010 “Blue Morph,” BIOTOPIA- Art in the Wet Zone, PORT 20:10, Contemporary Art and Social Technology, Aalborg, Denmark.

March 20, 2010 “Blue Morph” SOLO Theater DoZ, Santa Ynez, California.

November 13-22, 2009 "Water Bowls," Microwave International New Media Arts Festival, Hong Kong.

January 1, 2009 "Blue Morph," Integratron, Joshua Tree, California.

October 17, 2008 "Blue Morph," "Hybrids, Trondheim Matchmaking, Festival for Art and Technology, Trondheim Centre for Contemporary Art, Trondheim, Norway.

April 13 - June 1, 2008. "Nano, Poetics of a New World/Nano, Poética de um Mundo Novo", Brazilian Art Museum, FAAP, São Paulo, Brazil.

December 8, 2007 – 2011 “Nanomandala, Fluid Bodies, Zero@wavefunction, Quantum Tunnel” at the Singapore Science Museum, Singapore.

December 5 – 11, 2007 "Blue Morph," Fringe Exhibitions, Los Angeles, California.

September 11 – November 25, 2007 "Blue Morph," CIANT Gallery, Prague.

May 3 – September 2, 2007 “Blue Morph” Premiering at BIOS 4, CAAC: Centro Andaluz de Arte Contemporaneo, Seville, Spain.

August 2007 “Water Bowls” & “Zero@wavefunction” at Nature Design, Design Museum, Zurich, Switzerland.

April - July 2007 “Blue Morph” at BIOS 4, The Andalusian Centre of Contemporary Art, Spain.

March – July 2007 “Water Bowls” at Feedback/Feedforward, Laboral gallery, Gijon, Asturias.

June 9, 2007 “Blue Morph” installation & Tesla: Extraterrestrial Vibrations at The Integratron, Joshua Tree, CA.

November 11 - 25, 2006 “Zero@Wavefunction” at The 2nd Art & Science International Exhibition & Symposium, Academy of Arts and Design, Tsinghua University, Beijing, China

August 2, 2006 “Water Bowls,” Museum of Modern Art of Trento and Rovereto, Italy.

July 21, 2006 “Water Bowls,” 3rd Beijing International New Media Arts Exhibition and Symposium, Beijing Cubic Art Center, Beijing, China.

September 13 - October 26, 2006 “Water Bowls” at Second Natures, Opening of the Broad Art Center, UCLA.

April 11 - 24, 2005 “Nanomandala” at the Nott Memorial, New York, NY.

March 30 - April 30, 2005 “Nanomandala” at Stefania Miscetti Studio, Rome, Italy.

December 16, 2004 - January 29, 2005 “Nanomandala” at Location One Gallery, New York, NY.

September 5, 2004 “Any/Nano/Body” In collaboration with choreographers Norah Zuniga-Shaw, Marianne Kim. LACMA West, Los Angeles, California

December 14, 2003 - September 6, 2004 “NANO” at Los Angeles County Museum of Art, LACMA Lab.

February 2004 “Cell Ghosts”. Apeejay Media Gallery, New Delhi, India.

May 2004 “Cell Ghosts” at Crash and Flow, Seoul-Shinchon Art Festival, Seodaemun prison Seoul, Korea.

November 19, 2003, “NANO” LACMA Lab (Los Angeles County Museum of Art): An Interactive exhibit on nanotechnology, Los Angeles, CA

November 11-25, 2003, Zero@Wavefunction at the 2<sup>nd</sup> Art & Science International Exhibition & Symposium, Academy of Arts and Design, Tsinghua University, Beijing, China.

June 10, 2003, Zero@Wavefunction at University of Wisconsin, Madison, Wisconsin.

November 22-29, 2003, “Cell Ghosts” at Red Gate Gallery, Beijing, China.

January 29, 2003, Zero@Wavefunction: nano dreams & nightmares” at the Visualization Portal, UCLA

July 31- September 15, 2002, Zero@Wavefunction at Biennial for Electronic Arts, Perth. John Curtin University of Technology, Perth, Australia.

## **Community Service**

Yearly Sci|Art summer school science Director and lecturer 2010-to date. Two-week summer school at UCLA CNSI for high School students with college credits. (2020, 2021 was virtual)

“A career in Chemistry” FREE virtual event for Santa Clarita and other schools around the country, 6<sup>th</sup>Annual Green STEM Summit, Santa Clarita, October 24, 2020

“From Man to Molecules: Nano-Technology and the Next ‘Big Bang’” Leonardo da Vinci, Inventing “Nanobubbles”, SciArt Nanolab, 2018 Ecological Mind, CNSI, UCLA the Future: Flight, Automata, Art, Anatomy, October 18-19, 2019 CNSI UCLA

“ NANO, ECO AND HOPE” ECOCENTRIC ART+SCIENCE SYMPOSIUM”  
Open-Mic. Marathon Symposium, CNSI Auditorium, California Nanosystems Institute, UCLA, April 21, 2017.

AFM Demonstration & lecture to Santa Monica High School AP Chemistry Class, December 12, 2006

Curriculum Advising, “Introduction to Nanotechnology” course at Santa Monica City College, September 2005

“Nano” docent lecture at the Los Angeles County Museum of Art, February 14, 2004

Guest Speaker, “Future Careers in Nanotechnology” Lincoln Middle School, Santa Monica, CA October 2002

## **Patents**

European and US 37 total issued, 84 applications see:

<https://www.patentguru.com/inventor/gimzewski-james>

## **Press Releases and Media Coverage**

Approximately 300 press articles reporting highlights of my research have appeared in various print media including Nature, Science, Scientific American, The Economist, The New York Times, The Wall St. Journal, The Times, Financial Times, New Scientist, The Los Angeles Times, and Discover Magazine.

TV Programs and Radio interviews on my research have been broadcast in Europe and Japan as well as on BBC World Services and CNN International, Deutschland Radio, ABC Radio National etc. I participated in a program on Nanotechnology for the BBC in the Open University. I also featured and in “The Nano-Revolution” for CBC-TV Canada in an episode entitled “Welcome to Nano City,” which was aired throughout Canada and Europe this year. The NHK Program “The proposal for the future” a 2011 documentary on nanotechnology has been viewed by 32 million households worldwide. I also was cast in the film documentary “Superhuman: The Invisible Made Visible” 2020.

**Invited Talks: ~500 to date**

**Publications: ~340 to date**

I am compelled to explore how these undercurrents shape our understanding of our minds, our universe, and the emergent behavior mediated by advanced deterministic technologies. The inherent dynamics of criticality are not alien but intimately entwined with our natural and technological world,