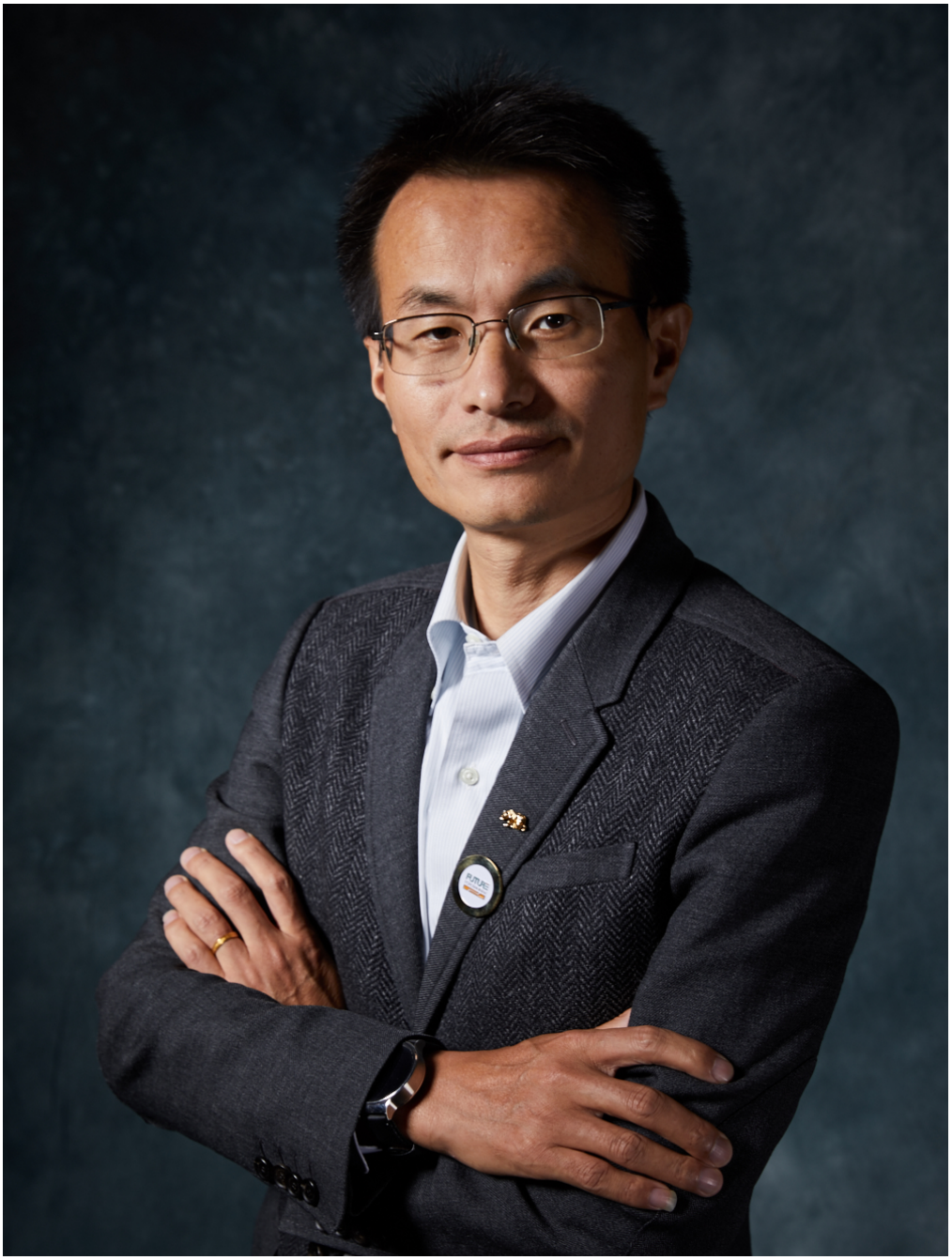


Professor Peidong Yang
S.K. and Angela Chan Distinguished Professor of Energy
Professor of Chemistry
University of California, Berkeley
USA

OMAR M. YAGHI
JAMES AND NEELTJE TRETTER CHAIR
PROFESSOR OF CHEMISTRY

CO-DIRECTOR
KAVLI ENERGY NANOSCIENCES INSTITUTE
CALIFORNIA RESEARCH ALLIANCE BY BASF
BAKAR INSTITUTE OF DIGITAL MATERIALS FOR THE PLANET

DEPARTMENT OF CHEMISTRY
602 LATIMER HALL, UC BERKELEY
BERKELEY, CA 94720
UNITED STATES

E-MAIL: YAGHI@BERKELEY.EDU
WEB: HTTP://YAGHI.BERKELEY.EDU/

January 26th, 2023

World Cultural Council

Case Postale 373, 1630 Bulle 2, Switzerland

Dear Selection Committee Members:

Historically, nanoscience research has been centered around three classes of nanoscale building blocks based on their dimensionalities: C_{60} & quantum dot (0-dimensional, 0D), nanotube and nanowire (1D), graphene and 2D materials (2D). Dr. Yang has pioneered the chemistry and physics of semiconductor nanowires, particularly in the areas of using semiconductor nanowires for photonics, nanofluidics, thermoelectric and solar energy conversion applications.

In the past 25 years, the Yang group has successfully initiated the nanowire research program and established their leadership in the field. In fact, his research group is one of the few groups that pioneered and established the field of semiconductor nanowire research (*Science*, 273, 1836, 1996). As a result, around 400 papers have been published in top journals like *Science, Nature, Nature Materials, Nature Nanotechnology, Nature Photonics, PNAS*. Their work is often highly cited. For example, the 2001 Science paper has been cited more than 10000 times. According to ISI (Thomas Reuters), Yang is ranked as No. 1 in materials science and No. 10 in chemistry for 2002-2012 based on average citation per paper. *His Google h-index is at 204, with total citation above 180000.*

Dr. Yang was the 2007 NSF Alan T. Waterman Award, 2015 MacArthur Fellowship, DOE E. O. Lawrence Award, 2012 MRS Medal, 2011 ACS Baekeland Medal, 2020 Global Energy prize recipient because of his revolutionary nanowire research. He is the 2014 Thomas Reuters Citation Laureate for Physics based on his semiconductor nanowire research. He is a member of National Academy of Sciences, and American Academy of Arts and Sciences. He has co-founded three startups Nanosys Inc. Alphabet Energy Inc. and 3C Energy Inc. More specifically, his group has made significant contribution in energy conversion/storage research using semiconductor nanowires.

Nanolasers and Nanophotonics

To complement micro- and nano-electronics, optical components have undergone a process of miniaturization over the past several decades. Thus, it is not an exaggeration to state that the maintenance and improvement of modern society are directly related to research advancements in photonic devices and circuits. Similar to transistors, the reduction of the size of lasers would enable a higher packing density of devices and lower power consumption per device. Yang pioneered UV/blue light lasing, subwavelength waveguiding, and non-linear optical mixing in semiconductor nanowires, and has stimulated significant work worldwide, in nanowire-based optoelectronics. These studies laid the foundation for nanowire-based sub-wavelength photonic

integration, novel nanowire scanning probe imaging and spectroscopy as well as solar energy conversion. The discovery of the first room-temperature ultraviolet nanowire nanolaser (the world's smallest laser, 2001) has led to a new area of exciting fundamental research --- *nanowire photonics*. Many other research groups have taken this "nanowire-as-laser-cavity" concept to develop nanowire nanolasers with different compositions and emission wavelengths, from UV to NIR. Yang also discovered that these semiconductor nanowires, having high refractive index, can function as low-loss optical waveguides for UV and visible lights both in air or liquid medium. Using a $KNbO_3$ nanowire as key component, Yang has created an optical probe that potentially combines fluorescence microscopy and force microscopy. Nanowires can also be used to directly interface with Mammalian cells for electrical and optical stimulation purposes. Developing such flexible nanowire probes would enable the researchers to monitor in-vivo biological processes within single living cells and will greatly improve our fundamental understanding of cell functions, intracellular physiological processes, and cellular signal pathway. The use of these unique nanowire intracellular probes has resulted in novel single-cell endoscopy as well as efficient cell cargo delivery tools.

The development of highly stable, wavelength-tunable coherent light sources on the nanoscale can unlock the potential for commercial applications in optical communications, sensing, imaging, and data storage, among many others. The ability to manipulate pulses of light within sub-micron volumes is vital for highly integrated photon-based devices, such as optical computers, to be realized. Chemically synthesized nanowire represents an important class of photonic building blocks that exhibit sub-wavelength optical functionalities.

Artificial photosynthesis

Yang has been leading the field of using semiconductor nanowires for artificial photosynthesis, a process of directly converting water and carbon dioxide into liquid fuels using sunlight. Early 2013, Yang reported the first fully integrated nanowire-based system for direct solar water splitting. In 2015, Yang created a synthetic "leaf" that is a hybrid system of semiconducting nanowires and bacteria *S. Ovata*. The nanowires gather sunlight, and the bacteria trigger the use of carbon dioxide and water to complete the photosynthetic process and produce a targeted carbon-based chemical such as butanol. This is the first time that a fully integrated system was assembled to produce value-added chemicals directly and solely from CO_2, H_2O and sunlight, and is widely considered one of the major breakthroughs in the field of artificial photosynthesis. Importantly, these systems now ascend to the high solar efficiencies of traditional semiconductor-based photovoltaic and photoelectrochemical devices and transfer over the captured sunlight to the robust and selective CO_2-fixing microorganisms responsible for the biosynthesis of a diverse, nearly limitless, array of chemical products.

Yang has also coined the name "**Liquid Sunlight**" based on the photosynthetic nanowire biohybrids work. **Liquid sunlight** can be considered as a new form of chemical energy converted and stored in chemical bonds from solar energy. Efficient capture and storage of solar energy can provide unlimited renewable power sources and drive the capture and conversion of greenhouse gases such as CO_2 into valuable chemicals. Such an artificial photosynthetic process presents one of the most important solutions, if not the only one, towards net-zero carbon emission or even negative emission society in the near future.

Waste heat recovery:

Nanowires were also demonstrated to exhibit fundamentally different phonon transport properties from their bulk counterparts. In the 1990s, Dr. Millie Dresselhaus predicted that *zT* can be increased above bulk values in thin nanowires. Yang has demonstrated for the first time silicon nanowires have size-dependent thermal conductivities, and verified this early prediction experimentally. This fundamental observation led to a new way of designing efficient thermoelectric material. Yang discovered that silicon nanowires with rough surface and diameters of about 50 nm exhibit 100-fold reduction in thermal conductivity, yielding ZT~0.6 at room temperature.

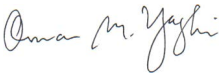
Based on this silicon nanowire thermoelectric technology, a startup Alphabet Energy Inc was established in 2009. The company's thermoelectric module attaches to an exhaust stack and convert waste heat into electricity, cutting fuel consumption and greenhouse emissions by up to 2.5%. It is important to note that the engines that generate most of the world's power typically operate at only 30–40 percent efficiency, releasing roughly 15 terawatts of heat to the environment. These silicon nanowire arrays show great promise as high-performance, scalable thermoelectric materials for waste heat recovery in power plants, refineries and automobiles, and make significant contribution in the global efforts of curbing greenhouse gas emission.

Energy storage with silicon nanowires:

Yang is the original inventor for several fundamental nanowire IPs since 1999 that cover a broad range of nanowire structures for energy application, e.g. US Patent No. 9,881,999, US 7,569,941, US 7,569,847, US 6,996,147, US 6,882,051, US 5,897,945, US 7,834,264. Silicon nanowires are being produced in large industrial quantities (in tons) at a competitive cost at OneD Materials to meet market requirements for world-leading battery makers. Use of nanowire anodes in batteries leads to significantly higher energy and power densities, faster charging at lower temperatures, and better performance for a wide range of applications, from power tools to consumer electronics and electrical vehicles.

Yang is recognized internationally for his original and outstanding contributions to nanoscience and related renewable energy technology. This is illustrated through: 1) pioneered research in semiconductor nanowire science and technology, particularly in the areas of using semiconductor nanowires for photonics, thermoelectric and solar energy conversion applications; 2) his extraordinary record of publications in the field of nanoscience and nanotechnology. He has authored and co-authored over 400 peer reviewed journal articles, and held over 50 US and foreign patents. 3) his extremely outstanding recognitions and awards for his technical achievements and the development of most siginificant products. *His pioneering and groundbreaking research in the field of nanowire synthesis and integration has led to a paradigm shift, transforming it from science discovery into practical energy technologies that benefit our society*. His seminal contributions to the application and integration of nanowires in broad areas of photonics, thermoelectric and solar energy conversion applications make him a perfect candidate for the award. With his extraordinary creativity, talent, and tenacity in advancing nanoscience and related renewable energy research, I consider Prof. Yang a perfect candidate for the prestigious award.

Sincerely Yours,



Omar M. Yaghi

MAX-PLANCK-INSTITUT
FÜR KOHLENFORSCHUNG

MPI für Kohlenforschung Postfach 10 13 53 45466 Mülheim an der Ruhr

The World Cultural Council

Albert Einstein World Award of Science
Award Committee

Prof. Dr. Dr. h.c. Ferdi Schüth
Geschäftsführender Direktor
Telefon (0208) 306 2372/73
Telefax (0208) 306 2995

schueth@mpi-muelheim.mpg.de

Mülheim, January 26th 2023

Letter to support the nomination of Prof. Dr. Peidong Yang for the

„*Albert Einstein World Award of Science 2023*"

Dear Members of the Award Committee,

I have been informed that Prof. Dr. Peidong Yang, UC Berkeley, will be nominated for the *Albert Einstein World Award of Science*. With this letter I would like to support this nomination with the highest possible emphasis. Already at this point, I can safely say that I am amazed at the originality, pace, and quality of his research.

I am director of the Max-Planck-Institut für Kohlenforschung, and from 2014-2020 I have served as Vice President of the Max-Planck-Gesellschaft, who over the years counts 30 Nobel laureates in their ranks. As vice president I was responsible for the nominations from the Max-Planck-Gesellschaft to various highest level international awards. I was thus constantly exposed to the work of eminent scientists from many different fields, including many Nobel Prize winners, and someone like Peidong Yang is clearly in the very top league of also this highly distinguished group. Additionally, Peidong Yang I can directly judge from my own detailed knowledge of the research field, which is close to Peidong Yang's. His track record is absolutely stellar, especially considering the fact that he is still relatively young, having just reached the age of 50. The details of his CV I do not want to repeat, they are certainly listed in the nomination package, and so I focus more on my personal perception and judgement of Peidong's achievements.

I have known Peidong Yang and his work for about 25 years, and I have always admired his creativity, his knowledge, and his "eye" for identifying the most challenging scientific and societal problems. Peidong entered the international scene with a big bang with his

publications on the synthesis of ordered mesoporous materials, while he was working as a post-doc with Galen Stucky at the end of the 1990s. Peidong was able to synthesize a broad range of different oxide materials by templating with block copolymers, and thus dramatically extended the silica composition, which at that time was the only one available with reasonable stability. These studies are true “classics”, and Peidong was known around the world within a few months already as a young post-doc. I have relied often on these results of his research in the field of mesoporous materials, which really opened up new horizons.

Since then, he has continued on this outstanding pathway. The list of his awards and distinctions, his publication track record, the publication and citations statistics and his CV speak for themselves: Peidong is among the – if not the - most well known and respected scholars in materials science and chemistry world-wide.

When he moved from Santa Barbara on to Berkeley to his fully independent faculty position in 1999, he changed gears, and - again - almost immediately left his prints in the new field he entered: semiconductor nanowires for various applications. He was able to produce very high quality ZnO, silicon and other nanowires – isolated or in well-ordered arrays, and used them for various applications in lasing, photonics, or as components of solar cells. The scope, originality and productivity of Peidong only a few years after he started work in this direction is truly breath-taking.

Of highest relevance for the Einstein-Award, is certainly also the fact, that his ground-breaking contributions in this field are on the one hand brilliant basic science, but on the other hand also address one of the most burning question, which the world is facing, the question of our future energy supply. Peidong has developed his nanowire-based systems especially for applications, which are relevant in the energy field: He has pioneered nanowires as a key element in better performing solar cells, since charge transport is improved in nanowires compared to particulate systems. This finding triggered research activities in laboratories all around the world, and Peidong spearheaded activities in creating ever new cell designs with improved properties. Similar approaches were also used to produce photocatalytic water-splitting devices, which were based on new design concepts mimicking biological systems.

What struck me most in his most recent work is the apparent ease and virtuosity with which he recently integrated biological systems, such as bacteria, into his nanodesigned devices. This leads to hybrid systems, which boost performance even further, such as exemplified by the integration of a CO_2 reducing bacterium, the properties of which can even be used to facilitate the synthesis of the overall photohydrogenation system. Thus, solar energy can be harvested, CO_2 can be captured from the atmosphere, and chemical energy carriers can be produced.

This achievement rightfully deserves to be labelled an „artificial leaf“ – a true innovation in the search for alternative transportation fuels.

Beyond photocatalytic materials and devices, his nanostructuring approaches were also used in other sectors of the energy system, such as for the creation of novel high performance thermoelectrics or advanced battery materials, and in both fields the developments of Peidong Yang are practically so relevant, that he founded companies, which are successfully commercializing the technologies, and also these technologies support the transition to alternative transportation fuels.

In more recent years, Peidong Yang has again pushed the state of the art in several fields, some of which I would like to highlight: He has continued to work on halide perovskite synthesis and application, both in lead-containing and lead-free systems. With the europium-based halide perovskite nanoparticles he discovered a blue-emitting material with a sharp emission at 435 nm, which could lead to the development of better displays and which resolves some of the issues of the lead-containing systems, which the Yang-group had studied before. Very recently he combined the key structural element of perovskites, the octahedron, with crown-ethers and produced a whole range of crystallized supramolecular compounds (J.Am.Chem.Soc. 2022). These systems are extremely versatile, so that one can expect a range of different applications fields for the crown-ether linked perovskite units, in addition to fundamental insight into the properties of the key structural units of perovskites. This discovery was based partly on another stunning development from Peidong Yang’s group, the disassembly of perovskites into water-soluble inks (Nano Letters 2021), which could be reassembled to create perovskite thin films in controlled patterns – a room-temperature method for the construction of patterned semiconductor films, again with highly interesting application perspectives. In the field of bio-hybrid materials, I would like to mention the closely integrated bacteria-semiconductor array, building on his previous work on the bio-semiconductor hybrid systems. By identifying the problems related to a lack of contact between semiconductor and bacteria, Peidong could fine-tune the interaction to allow sustained acetate production over one week at an average sunlight-to-acetate efficiency of 3-4%, a roughly ten-fold increase over previous studies, suggesting a path towards even better performance. These are just a few examples of his recent work, and while have only mentioned these few examples, also his other work is never routine, but highly original and opening new avenues.

Peidong Yang’s achievements to date have left many most visible footprints in different subfields of chemistry and materials science, which are difficult to match for any other scientist, - and, as stated above, he is just 50 years old, so there is much more to come! Peidong is an

absolutely outstanding scientist, and I cannot think of a more deserving recipient of the Albert Einstein World Award of Science 2023.

Best

(F. Schüth) Mülheim, January 26th 2023

ZHONG LIN (Z.L.) WANG
Regents' Professor and
Hightower Chair in
Materials Science and
Engineering

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Atlanta, Georgia 30332-0245
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Personal website: http://www.nanoscience.gatech.edu
SCI publication record:
http://www.researcherid.com/rid/E-2176-2011
Editor-in-chief: Nano Energy:
http://www.nanoenergyjournal.com

JAN. 15, 2023

Dear Chairman:

I am writing to you to strong support the nomination of Professor Peidong Yang for the Albert Einstein World Award of Science. Dr. Yang has made outstanding contribution in solar cell and photosynthesis as well as water splitting, which made him deserved to be a candidate for ENI award.

In the last 20 years, Peidong has demonstrated an outstanding creativity and originality in energy research. He is one of the leaders in nanowire based energy science and photonics. His major contributions to science can be described in four parts. The most of his work is related to used nanowire arrays as dye sensitized solar cell for new energy. This research has attracted a broad range of research interest. Recently, he has applied nanowires for water splitting and photosynthesis that directly convert CO2 into useful materials. The seocond part is the demonstration of UV excited nanolasers using ZnO nanowires. This is the most outstanding work that has established his name in the field. The third part of this work is the application of nanowires in photonics and optoelectronics. He demonstrated novel applications of nanowires in non-linear optics. The last part of his major contribution is the first novel devices fabricated using GaN nanotubes as ionic field-effect transistor. This works establishes the principle of controlling ionic transport in microfludics using electric field。 Peidong has published many high profile papers in the top journals in the field, such as *Science, Nature, Nature Materials, Nature Nanotechnology and Nano Letters*. I am very impressed by both the quality and quantity of his research carried out in the last 20 years! The impacts of his research are clearly reflected by the citation and h-index of his publications.

Peidong has received many awards and recognitions. His work has been publicized by many media. His research has been well received by the community, and he is highly regarded by his peers.

Peidong has demonstrated a great leadership in community service. He is an associate editor for JACS. He was also the first leader of the nanoscience division for ACS.

In summary, as a young scientist around age of 38, Peidong Yang has demonstrated an extraordinary success in creative research, teaching and student training, community

service and leadership. I rank him to be the top **1%** in faculty of his peer in any major US research universities. By endowing him as a MRS fellow is a great way to acknowledge his great contribution to nanoscience. With this letter, I give you my strongest support to his nomination.
Thank you very much.

Sincerely yours,

Zhong Lin (Z.L.) Wang
Regents' Professor and Hightower Chair
School of Materials Science and Engineering Georgia Institute of Technology, Atlanta GA 30332-0245

PEIDONG YANG – Biography

Peidong Yang is a Chemistry professor, S. K. and Angela Chan Distinguished Chair Professor in Energy at the University of California, Berkeley. He is a senior faculty scientist at Materials and Chemical Sciences Division, Lawrence Berkeley National Laboratory. He is a member of both the National Academy of Sciences and the American Academy of Arts and Sciences.

Dr. Yang is known particularly for his work on semiconductor nanowires and their photonic and energy applications including artificial photosynthesis. He is the director for California Research Alliance by BASF and for the Kavli Energy Nanoscience Institute at Berkeley.

Dr. Yang received his B.A. in Chemistry from the University of Science and Technology in China in 1993. He then received his Ph.D. in Chemistry from Harvard University in 1997, and did his postdoctoral fellowship at the University of California, Santa Barbara. Soon after, he joined the faculty at the University of California, Berkeley. He is the recipient of Global Energy Prize, MacArthur Fellowship, DOE E. O. Lawrence Award, ACS Nanoscience Award, MRS Medal, ACS Baekeland Medal, Alfred P. Sloan research fellowship, the Arnold and Mabel Beckman Young Investigator Award, National Science Foundation Young Investigator Award, MRS Young Investigator Award, Julius Springer Prize for Applied Physics, ACS Pure Chemistry Award, and Alan T. Waterman Award. He was the 2014 Thomas Reuters Citation Laureate for Physics.

He cofounded three companies: Nanosys Inc., Alphabet Energy Inc., 3C Energy Inc.

Peidong Yang has developed basic chemistry for rational nanowire synthesis and opened up an important materials research field that had significant scientific and technology impacts. Yang introduced metal oxide nanowires into a high-Tc superconductor for the purpose of enhanced flux line pinning [*Science*, 273, 1836, 1996], which started worldwide nanowire research based on the vapor-liquid-solid process [*J. Am. Chem. Soc.* 2001, *123*, 3165]. Yang has been the world leader in illuminating the electrical and optical properties of semiconductor nanowires. His work has shown unambiguously that semiconductor nanowires with predictable and controlled electrical properties can be synthesized, thus providing electronically-tunable nanoscale building blocks for device assembly for the first time, including nanoscopic lasers [*Science,* 292, 1987, 2001] and thermoelectrics [*Nature,* 451, 163, 2008]. In addition, Yang has created a synthetic leaf based on semiconducting nanowires [*Nano. Lett.* 15, 3634, 2015, *Science*, 351, 74, 2016, *Joule*, 4, 800, 2020]. This is the first time that a fully integrated system was assembled to produce value added chemicals directly and solely from CO_2, H_2O, and sunlight, and it is widely considered as one of the major breakthroughs in the field of artificial photosynthesis. These early studies set the intellectual framework for predictable nanoscale wire synthesis, and they have provided seminal examples of nanoscale building blocks. These semiconductor nanowires will play essential roles for a sustainable society including nano-electronic/photonic and biomedical technologies, as well as energy conversion and storage devices.

PEIDONG YANG

University of California
Department of Chemistry
Berkeley, CA 94720
E-mail: p_yang@berkeley.edu
510-643-1545 (phone) 510-642-7301 (fax)

- Professional Interests: Materials and solid state chemistry; nanostructure synthesis, assembly and characterization; nanophotonics & plasmonics; energy conversion (artificial photosynthesis, photovoltaics, thermoelectrics and nanofluidics).
- Research Advisor for 66 Ph. D. and 84 postdoctorals.
- Coauthors of over 400 scientific articles, over *370* invited/plenary talks.
- 45 Patents, Startups (Nanosys Inc.; Alphabet Energy Inc.; 3C Energy Inc.)
- H-Index 204, overall citation: 184000 (Google Scholar)

EDUCATION and EMPLOYMENT

1988-1993	B. S. in Chemistry, University of Science and Technology of China, P. R. China, 1993.
1993-1997	Ph.D. in Chemistry, Harvard University, 1997 (with Charles Lieber).
1997-1999	Postdoc, Department of Chemistry, University of California, Santa Barbara (with Galen Stucky).
1999-2004	**Assistant Professor** of Chemistry, University of California, Berkeley.
2002-2004	**ChevronTexaco Assistant Professor**, Department of Chemistry.
2001-2009	**Founding Member,** Scientific Advisory Board, Nanosys, Inc.
2002-2009	**Faculty Scientist**, Materials Science Division, Lawrence Berkeley National Laboratory
2004-2007	**Associate Professor** of Chemistry, University of California, Berkeley
2004-	**Deputy Director**, Center of Integrated Nanomechanical Systems, Berkeley
2005-	**Professor** of Materials Science and Engineering
2007-	**Professor** of Chemistry
2008-2009	**Miller Professor**, Department of Chemistry
2009-	**Senior Faculty Scientist**, Materials Science Division, Lawrence Berkeley National Laboratory
2009-	**Founder,** Alphabet Energy, Inc.
2010-2012	**Department Head, North Site Director**, Joint Center for Artificial Photosynthesis.
2012-	**S. K. and Angela Chan Distinguished Chair in Energy**
2013-	***Co-director***, Kavli Energy Nanoscience Institute
2014-	***Director,*** California Research Alliance by BASF
2019-	***Director***, Kavli Energy Nanoscience Institute

HONORS & AWARDS

2022	CACS Outstanding Achievement Award
2021	Foreign Member, Chinese Academy of Science
2021	NASA CO_2 Conversion Challenge Phase II First prize winner
2021	Laureate Distinguished Fellow, International Engineering and Technology Institute
2020	Fellow, American Association for the Advancement of Science
2020	Global Energy Prize
2019	World Laureates Association, Fellow
2019	Global Energy Prize finalist
2018	USTC AAGNY Award
2018-	Highly cited researchers in Chemistry, Physics and Materials Science.
2018	Edward Mack Jr. Memorial Award, Ohio State University
2016	2016 World Technology Award in Energy Finalist
2016	Fellow of World Technology Network
2016	Invited Speaker at White House Frontier Conference
2016	Elected as member of National Academy of Science
2016	Nano Research Award
2016	Distinguished Visiting Fellowship, Royal Academy of Engineering

2015 MacArthur Fellow
2015 ChinaNano Plenary Lectureship Award
2015 Senior Fellow, CIFAR
2015 ACS nano Lectureship Award
2015 Honorary Professor, University of Science and Technology, Beijing
2015 World Outstanding Chinese Award
2015 Nano Today Award
2015 Honorary Professor, Nanjing Tech University
2015 DOE E. O. Lawrence Award
2015 Inorganic Chemistry Frontier Award
2015 Honorary Professorship, National Taiwan Normal University
2014 FRSC, Fellow, The Royal Society of Chemistry
2014 Thomson Reuters Citation Laureate in Physics
2014 Thomson Reuters Highly Cited Researcher
2013 Honorary Fellow, Chinese Chemical Society
2013 Honorary Professor, Griffith University
2013 Honorary Professor, Jilin University
2013 Honorary Professor, Xiamen University
2013 ACS Inorganic Nanoscience Award
2012 Honorary Professor, Fudan University
2012 R&D 100 Award
2012 Elected as member of American Academy of Arts and Science
2012 Honorary Professor, The University of Queensland
2011 MRS Medal
2011 Baekeland Medal
2011 No. 1 materials scientist of the past decade based on citation/paper (ISI/Thomson Reuters)
2011 Top 10 chemists of the past decade based on citation/paper (ISI/Thomson Reuters)
2010 MRS Fellow; R&D 100 Award
2008 Miller Professorship
2008 Scientific American 50 Award
2008 In-cites top 3 most-cited materials scientists in the world 1998-2008 (No. 2).
2007 NSF Alan T. Waterman Award.
2005 ACS Pure Chemistry Award
2004 Julius Springer Prize for Applied Physics
2004 MRS Outstanding Young Investigator Award
2004 Camille Dreyfus Teacher-Scholar Award; Dupont Young Professor Award
2003 MIT Tech. Review TR 100; Outstanding Performance Award (LBNL)
2003 First Chair, American Chemical Society, Nanoscience Subdivision.
2003 ChevronTexaco Chair in Chemistry, Berkeley
2002 Beckman Young Investigator Award
2001 ACS ExxonMobil Solid State Chemistry Award
2001 Hellman Award; NSF CAREER award; Alfred P. Sloan Fellow; Research Innovation Award
2000 3M untenured faculty award
1999 Dreyfus New Faculty Award

LECTURESHIPS

2022 WIN Distinguished Lectureship, University of Waterloo
2021 Global Nanoscience Lectureship, 2021
2021 University of Virginia, Distinguished Research Lectureship
2021 Purdue University, Phi Lambda Upsilon Annual Seminar
2020 Rayson Huang Lectureship, HKU
2020 Birch / Craig Lectureships, ANU
2019 Xuetang Lectureship, Tsinghua University
2018 Julia S. and Edward C. Lee Memorial Lecture, University of Chicago
2018 Anbang Dai Lectureship, Nanjing University
2018 Allergan Distinguished Lectureship, Cal State University
2017 NTU, COE Distinguished Lectureship
2017 Prichett Lecture at Georgia Tech

2016	Xinda Lectureship, Peking University
2016	Forum of the Great Mind, USTC
2016	Inaugural RuoSui Lectureship, Suzhou Nano Institute
2016	Frontier Seminar, Texas A & M University
2015	China Distinguished Material Scientist Forum, University of Science and Technology, Beijing
2014	Lujia Lectureship, Wuhan University
2014	University Master Lectureship, Shanghai Jiaotong University
2014	R.B. Woodward Lectures in the Chemical Sciences, Harvard/MIT Inorganic Chemistry Seminar
2014	Munushian Lecture, USC
2013	H. Willard Davis Lectureship, University of South Carolina
2013	Fitzpatrick Institute for Photonics, Duke University
2013	Nanqiang Lectureship, Xiamen University.
2012	Moses Gomberg Lecture, University of Michigan
2012	Nieuwlwand Honorary Lectureship, University of Notre Dame
2011	Next Power Lectureship, National Tsinghua University
2010	Guest Professorship, Peking University
2010	Robert Langer Symposium Lectureship, Yale University
2010	Distinguished Inorganic Chemistry Lecturer, Northwestern University.
2009	NSF Distinguished Lectureship
2009	Brian Bent Lectureship, Columbia University
2007	Central South University
2007	Max Planck Lectureship, Max Planck Institute, Stuttgart, Germany
2006	McElvain Lectureship, Department of Chemistry, University of Wisconsin, May, 2006.
2006	Molecular Science Forum Professorship, Institute of Chemistry, Chinese Academy of Science.
2004	UOP/Honeywell Invitational Lectureship, UOP
2002	Texas Christian University Research Fund Lectureship

ASSOCIATE/EXECUTIVE EDITOR

J. Am. Chem. Soc. AE2005- EE2021-
PNAS Editorial Board 2022-

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PROFESSIONAL AND UNIVERSITY SERVICES

2018	Member of NAS committee on ARPA-E evaluation. https://www.nap.edu/catalog/24778/an-assessment-of-arpa-e
2019	Guest Editor, *Chem. Review*, Theme issue on Semiconductor Nanowires.
2018-	ACS Steering Committee, Launching a new ACS journal, Accounts for Materials Research.
2018-	Chair/co-Chair, Organizing Committee, ACS Publication Symposium (2018, 2019).
2016-2021	Future Prize Selection Committee
2019	Chancellor's committee on Signature Initiatives
2020	Chancellor's committee on Physical Sciences
2021	ACS Data Standard Panel Chair: Nanoscience, Materials, Energy

LIST OF MOST SIGNIFICANT PUBLICATIONS

"Nanorod-superconductor composites: a pathway to materials with high critical current density," P. Yang, C. M. Lieber, *Science,* 273, 1836, 1996.

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