

Sungkyun International Solar Forum



SISF 2018

(www.skku-solar.org)

Halide Perovskites: Photovoltaics and Beyond
600th Anniversary Hall
Sungkyunkwan University (SKKU), Seoul, Korea
June 27 (Wed)-29(Fri), 2018

The 7th Sungkyun International Solar Forum



Organized by

- Global Frontier Center for Multiscale Energy Systems, Seoul National University (SNU)
- BK Plus, School Chemical Engineering, School of Advanced Materials Science and Engineering, Department of Energy Science, Sungkyunkwan University (SKKU)

Sponsored by

- The Korean Electrochemical Society
- Korea Photoscience Society
- Korean IPS

Welcome to SISF 2018

It is our great pleasure to host the **7th** Sungkyun International Solar Forum (SISF) that is held at 600th Anniversary Hall, Sungkyunkwan University (SKKU), Seoul, Korea, from June 27 (Wed) to June 29 (Fri), 2018. The organizing committee members are very pleased to invite world-leading scientists.

We have successfully organized last six SISF2011 - SISF2017. At the first SISF, we discussed on the next generation photovoltaic technologies including silicon, CIGS and dye-sensitized solar cells. SISF2018 will focus on fundamentals and application of halide perovskites.

Organizing Committee

Chair

Nam-Gyu Park (School Chem. Eng., SKKU, Korea)

Program Chair

Hyunjung Shin (Dept. Energy Sci., SKKU, Korea)

Committee

Hyun Suk Jung (School Adv. Mater. Sci., SKKU, Korea)

Pil J. Yoo (School Chem. Eng., SKKU, Korea)

Duk-Young Jung (Dept. Chem., SKKU, Korea)

Jong Hyeok Park (Chem. Eng. Yonsei Univ., Korea)

Advisory Members

JiBeom Yoo (School Adv. Mater. Sci., SKKU, Korea)

Jinyoung Kim (Dept. Mater. Sci. Eng., SNU, Korea)

Min Jae Ko (Dept. Chem. Eng. Hanyang Univ., Korea)

Kyungkon Kim (Dept. Chem., Ewha Womans Univ., Korea)

Venue

600th Anniversary Hall

Sungkyunkwan University, Humanities and Social Science Campus, Seoul, Korea
(www.skku.edu)



→ Ways to Get From Incheon Airport to the Campus

From Incheon Int'l Airport

By subway

- Take the Airport Railroad from Incheon Airport. There is a commuter line and express line. It will be better for you to take express line if you can.
- Transfer to line 1 at the Seoul station. You should take the subway in the direction of City Hall station and Jonggak station, not Yongsan station and Singil station.
- Transfer to line 4 at the Dongdaemun Station. Take the subway toward HyeHwa station.
- Get off the train at HyeHwa station. Exit the station out of exit number 1 and walk straight. There will be university shuttle bus.
- Take the shuttle bus you will be arrived in Seoul campus of Sungkyunkwan University.

Fares : 3,800KRW(subway) + 300KRW(shuttle bus) = 4100KRW

Time : 103 minutes

More information about subway in Seoul : <http://www.seoulmetro.co.kr/>

By bus

- Walk to the bus stop in the Incheon Airport.
 - Buy ticket for, and take bus number 6011.
 - Get off the bus at the SungDae Ipgu. It may also say HyeHwa station, it is the same stop.
 - Walk to Sungkyunkwan University main gate or take a university shuttle bus from in front of Daiso.
- Fair** : 10,000KRW(bus) + 300KRW(shuttle bus)

Lodging: LOTTE CITY HOTEL MYEONGDONG

Website : <http://www.lottehotel.com/city/myeongdong/en/Default.asp>

Address: 362, Samil-daero, Jung-gu, Seoul 100-220 Korea

Tel: +82-2-6112-1000 / **FAX :** +82-2-6112-1004

Lotte City Hotel Seoul Myeongdong is located between Myeongdong, the business and shopping center of Seoul, and Cheonggyecheon, an oasis in the downtown area.



How to access



From Incheon Int'l Airport

✦ Airport Bus No. 6015

- Incheon Airport → Lotte City Hotel Myeongdong(Euljiro 2ga)
- Time : Approx. 90min
- Fare : KRW 10,000 per one way
- Operation Hour : 05:35~22:50 (every 10~20minutes)

From Gimpo Int'l Airport

✦ Airport Bus No. 6021

- Gimpo Airport → Lotte City Hotel Myeongdong(Euljiro 2ga)
- Time : Approx. 60min
- Fare : KRW 7,000 per one way
- Operation Hour : 06:00~22:30 (every 30~60minutes)

List of Invited Speakers

- T-1. (Tutorial) Jin Young Kim (SNU, Korea)
- I-1. (psc) Michael Grätzel (EPFL, Switzerland)
- I-2. (opv-psc) Kwanghee Lee (GIST, Korea)
- I-3. (psc) Atsushi Wakamiya (Kyoto Univ., Japan)
- I-4. (vacuum deposition) Henk J. Bolink (University of Valencia, Spain)
- I-5 (opv-psc) Yang Yang (UCLA, USA)
- I-6 (photodetector) Jinsong Huang (University of North Carolina, USA)
- I-7 (psc) Michael Saliba (Fribourg University, Switzerland)
- I-8 (Si-perov tandem 26.4%) Kylie Catchpole (ANU, Australia)
- I-9 (psc) Kai Zhu (NREL, USA)
- I-10 (psc) Hiroshi Segawa (The University of Tokyo, Japan)
- I-11 (psc) Jangwon Seo (KRICT, Korea)
- I-12 (psc) Anders Hagfeldt (EPFL, Switzerland)
- I-13 (psc) Yabing Qi (OIST, Japan)
- I-14. (module) Hongwei Han (HUST, China)
- I-15 (HTM-free) Lioz Etgar (Hebrew University of Jerusalem, Israel)
- I-16 (psc) Tom Miyasaka (Toin Univ., Japan)
- I-17 (theoretical) David S. Ginger, University of Washington
- I-18 (hydrogen) Ki Tae Nam (SNU, Korea)
- I-19 (psc) Prashant Kamat (Notre Dame Univ., USA)
- I-20 (tandem) Seigo Ito (Hyogo Univ., Japan)
- I-21 (EIS) Ivan Mora-Sero (Universitat Jaume I, Spain)
- I-22 (psc and LED) Subodh Mhaisalkar (NTU, Singapore)
- I-23 (materials) Xiaolin Zheng (Stanford U., USA)
- I-24 (HTM for psc) Licheng Sun (KTH Royal Institute of Technology, Sweden)
- I-25 (psc) Joohe Moon (Yonsei U, Korea)
- I-26 (psc) Shuzi Hayase (KIT, Japan)
- I-27 (psc) Nam-Gyu Park (SKKU, Korea)

Biography

Tutorial Speaker (T)

T-1. Jin Young Kim (SNU, Korea)



Invited Speakers (I)

I-1. Michael Grätzel (EPFL, Switzerland)



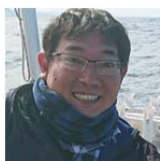
Michael Grätzel, Ph.D. is a Professor at the Ecole Polytechnique Fédérale de Lausanne where he directs the Laboratory of photonics and interfaces. He pioneered investigations of electron transfer reactions in mesoscopic systems and their application for electricity and fuel generation from sunlight. He invented the dye-sensitized solar cell (DSSC) that engendered perovskite photovoltaics one of the most exciting break-throughs in the history of photovoltaics. The DSSC is meanwhile commercially produced at the multi-Megawatt scale. His recent awards include the Global Energy Prize, Millenium Technology Prize, Balzan Prize, King Faisal International Science Prize, Einstein World Award of Science and 10 honorary doctor's degrees. He presented close to 100 named lectures and published some 1400 peer-reviewed articles that received over 200'000 citations (h-factor =210, by ISI-Web of Science) as well as several books. He serves on the editorial board of 12 peer-reviewed journals. He is an elected member (fellow) of the Royal Chemical Society, the German and Bulgarian Academies of Science and Royal Spanish Academy of Engineering.

I-2. Kwanghee Lee (GIST, Korea)



Kwanghee Lee is distinguished professor at the School of Materials Science and Engineering, Gwangju Institute of Science and Engineering (GIST). He received his B.S in Nuclear Engineering from Seoul National University in 1983, and M.S. in Physics from KAIST in 1985. Then he received his Ph.D. in Physics at UCSB (USA) in 1995 under the guidance of Prof. Heeger with a subject of metallic and semiconducting polymers. Professor Lee started his professorship at Pusan National University in 1997 after finishing his two years Post-Doc at the University of California Santa Barbara (UCSB). Then he moved to GIST in 2007 and has organized and acted as a co-director of the Heeger Center for Advanced Materials (HCAM) together with the director, Professor Alan J. Heeger, who is a 2000 year Nobel Laureate in Chemistry. Professor Lee leads the R&D program of organic & hybrid perovskite solar cells in GIST as a director of the Research Institute of Solar and Sustainable Energies (RISE) and also as a director of the GIST-Imperial College London (ICL) International Collaboration R&D Center. He received many awards including Kyoung-Am Award (2010), Best Research Awards in GIST (2011), National President Award (2008), and National President Metals Award in Research Excellency (2013). Now Professor Lee is a leading scientist in the area of "plastic electronics" including organic solar cells, polymer LEDs, and organic FETs. He published over 250 peer-reviewed scientific papers, including Science, Nature, and Nature Communications, and 70 patent applications.

I-3. Atsushi Wakamiya (Kyoto Univ.)



Atsushi Wakamiya is an associate professor in Kyoto University. He received his BS, MS, and PhD degrees in physical organic chemistry from Kyoto University, in 1998, 2000, and 2003, respectively. During the summer of 2000, he worked with Prof. Lawrence T. Scott at Boston College (USA) as a visiting researcher. He started his academic carrier at Nagoya University as an Assistant Professor with Prof. Shigehiro Yamaguchi in 2003. In 2010, he moved to Kyoto University. He is a group leader of ALCA project of JST from 2016. He is a co-chair of the 1st Japanese-American-Germany Frontiers of Science Symposium (2017). His research interests include physical organic chemistry, organoboron chemistry, and materials science.

I-4. Henk J. Bolink (University of Valencia, Spain)



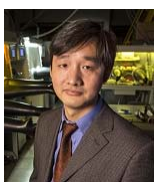
Hendrik (Henk) Bolink is a research professor and group leader at the Instituto de Ciencia Molecular of the University of Valencia. He received his B.S., M.S. and Ph.D. from University of Groningen, The Netherlands in 1991, 1993 and 1997, respectively. He worked at DSM from 1997 to 2001 as a materials scientist and project manager in the central research and new business development department, respectively. In 2001 he joined Philips, to lead the materials development activity of Philips's PolyLED project. In 2003 he moved to Valencia to start a new research group on molecular opto-electronic devices. Since 2016 he is visiting associate professor at Nanyang Technological University (Singapore). He has been doing research on solution processed organic light-emitting diodes in particular those employing ionic transition metal complexes that are referred to as light-emitting electrochemical cells. Since 2013 he has been working on perovskite based photovoltaic and light-emitting devices, focusing on thin film architectures prepared using vacuum based processing methods. He received awards, including Premio a la Excelencia Investigadora (Award for excellent research) from the Royal Spanish society of Chemistry in 2016 and Premio a la Investigación y Desarrollo (Research and development award) received from the Social Board of the Universitat de València in 2011. He has directed 11 PhD thesis. He published over 218 peer-reviewed scientific papers, and 15 patent applications, 1 book editor, 1 book chapters. His h-index was 54 and his work was cited over 11000 times as of February, 2017

I-5. Yang Yang (UCLA, USA)



Yang Yang holds a B.S. in Physics from the National Cheng-Kung University in Taiwan in 1982, and he received his M.S. and Ph.D. in Physics and Applied Physics from the University of Massachusetts, Lowell in 1988 and 1992, respectively. Before he joined UCLA in 1997, he served on the research staff of UNIAX (now DuPont Display) in Santa Barbara from 1992 to 1996. Yang is now the Carol and Lawrence E. Tannas Jr. Endowed Chair Professor of Materials Science and Engineering at UCLA. He is a materials physicist with expertise in the fields of organic electronics, organic/inorganic interface engineering, and the development and fabrication of related devices, such as photovoltaic cells, LEDs, and memory devices.

I-6. Jinsong Huang (Nebraska Lincoln Univ. USA)



Jinsong Huang received his PhD degree in Material Science and Engineering from the University of California-Los Angeles in 2007 with Professor Yang Yang. After working in Agiltron Inc. as a research scientist for two years, he joined the University of Nebraska-Lincoln in 2009 as an assistant professor in the Department of Mechanical and Materials Engineering, and was promoted to associate professor with tenure in 2014, and professor in 2016. He joined the faculty in the department of Applied Physical Sciences of University of North Carolina at Chapel Hill in 2017. His current research interests include solution processed electronic materials for applications in sensing, energy and consumer electronics. He has authored over 150 publications, and over 20 patents, 6 book chapters and 2 book. He served as the Chair of Material Engineering PhD Program at UNL, and was awarded as William E. Brooks Engineering Leadership Fellow in 2014, and Susan J. Rosowski University Professorship in 2015. He has received several awards including Edgerton Innovation Award (2012), NSF CAREER Award (2013), and DOD Young Investigator Award (2010).

I-7. Michael Saliba (Fribourg University, Switzerland)



Michael Saliba is a group leader at the Adolphe Merkle Institute in Fribourg, Switzerland. From 2015-2017, he was a Marie Curie Fellow at EPFL (with a research visit at Stanford University). He studied mathematics and physics at Stuttgart University (BSc) as well as physics at the Max Planck Institute for Solid State Research (MSc, simulation methods for plasmonic oligomers). He completed his PhD at Oxford University in 2014 (with a research visit at Cornell University) working on crystallisation behaviour and plasmonic nanostructures in perovskites. He has an h-index of 34 and published over 80 works in the fields of plasmonics, lasers, LEDs, and perovskite solar cells. In 2016, he was awarded the *Young Scientist Award* of the German University Association. In 2017, he was awarded the *Science Award of the Fraunhofer UMSICHT* institute, the *René Wasserman Award of EPFL*, and the *Postdoctoral Award of the Materials Research Society (MRS)*. He was also named as one of the *World's 35 Innovators Under 35* by the MIT Technology Review for his pioneering discoveries in the field of perovskite solar cells and optoelectronics. In 2018, he was selected as a Member of the Global Young Academy and the Young Academy of Germany.

I-8. Kylie Catchpole (ANU, Australia)



Kylie Catchpole is Professor in the Research School of Engineering at the Australian National University. She has over 100 scientific publications, with a focus on using new materials and nanotechnology to improve solar cells. Her work on plasmonic solar cells was named as one of the top 10 emerging technologies in 2010 by MIT Technology Review, and in 2013 she was awarded a Future Fellowship from the Australian Research Council. In 2015 she was awarded the John Booker Medal for Engineering Science from the Australian Academy of Science.

I-9. Kai Zhu (NREL)



Kai Zhu is currently a senior scientist in the Chemistry and Nanoscience Center at the National Renewable Energy Laboratory (NREL). He received his PhD degree in physics from Syracuse University in 2003, where he studied the electrical & optical properties and device physics of solar cells based on amorphous-silicon thin films and dye-sensitized mesoporous TiO₂ films. He then spent about one year at Kansas State University as a postdoctoral researcher, working on III-Nitride wide-bandgap semiconductors for high-power blue and UV light emitting diodes. In 2004, he joined NREL as a postdoctoral researcher, working on fundamental charge carrier transport and recombination in photoelectrochemical cells, especially dye-sensitized solar cells. Since 2007, he has worked as a staff scientist at NREL. Dr. Kai Zhu's current research interests are focused on both basic and applied research on perovskite solar cells, including perovskite material development, device fabrication and characterization, and basic understanding of charge carrier dynamics in these cells. In addition to solar cell applications, his research interests have also included hydrogen production via photoelectrochemical cells as well as nanostructured electrodes for Li-ion batteries and supercapacitors.

I-10. Hiroshi Segawa (The University of Tokyo, Japan)



Hiroshi Segawa is professor of The University of Tokyo, Japan. He received his Ph.D. in Molecular Engineering from Graduate School of Engineering of Kyoto University in 1989 and was Research Associate (1989-1995) at the division of Molecular Engineering of Graduate School of Engineering at Kyoto University. In 1995 he joined the University of Tokyo as Associate Professor of Department of Chemistry at Graduate School of Arts and Sciences. From 1997 he has also been in charge of Department of Applied Chemistry at Graduate School of Engineering. In 2006 Professor Segawa joined Research Center for Advanced Science and Technology (RCAST), The University of Tokyo. From 2016, he was appointed a professor of Department of Multi-Disciplinary Sciences, Graduate School of Arts and Sciences, The University of Tokyo. His research group is focused on the molecular-based solar cells.

I-11. Jangwon Seo (KRICT, Korea)

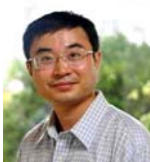


I-12. Anders Hagfeldt (EPFL, Switzerland)



Anders Hagfeldt is Professor in Physical Chemistry at EPFL, Switzerland. He obtained his Ph.D. at Uppsala University in 1993 and was a post-doc with Prof. Michael Grätzel (1993-1994) at EPFL, Switzerland. His research focuses on the fields of dye-sensitized solar cells, perovskite solar cells and solar fuels. From web of science April 2018, he has published more than 460 scientific papers that have received over 47,000 citations (with an h-index of 110). He was ranked number 46 on a list of the top 100 material scientists of the past decade by Times Higher Education. In 2014-2017 he was on the list of Thomson Reuter's Highly Cited Researchers. He is a member of the European Academy of Sciences, Royal Swedish Academy of Sciences, Stockholm, Royal Society of Sciences in Uppsala, and the Royal Swedish Academy of Engineering Sciences in Stockholm.

I-13. Yabing Qi (OIST, Japan)



Prof. Yabing Qi is Unit Director of Energy Materials and Surface Sciences Unit at Okinawa Institute of Science and Technology Graduate University. He received his B.S., M.Phil., and Ph.D. from Nanjing University, Hong Kong University of Science and Technology, and University of California Berkeley, respectively. His research interests include perovskite solar cells, surface sciences, energy materials, and organic electronics. Prof. Qi has published 90+ peer-refereed papers and is the inventor for 11 patents/patent applications. He has delivered 60+ keynote and invited research presentations at international conferences, technical meetings and universities. Prof. Qi is Guest Editor of perovskites themed issue of Sustainable Energy & Fuels (Royal Society of Chemistry). He is the Recipient of Young Scientist Award (Materials Research Society of Japan). As Symposium Chair, Prof. Qi organized International Symposium on Organic Electronics (Okinawa, Japan; October 3-5, 2012), International Symposium on Functional Materials (Okinawa, Japan; January 25-29, 2016), and International Symposium on Energy Science and Technology (Okinawa, Japan; January 22-26, 2018). As symposium organizer, he organized Symposium AA: Organic Semiconductors—Surface, Interface and Bulk Doping at the 2015 Materials Research Society Fall Meeting & Exhibit (Boston, USA; November 29-December 4, 2015), and four consecutive symposia on perovskite solar cells at the MRS Meeting: Symposium ES3 at the 2016 MRS Fall Meeting (Boston, USA; November 27-December 2, 2016), Symposium ES1 at the 2017 MRS Spring Meeting (Phoenix, USA; April 17 - 21, 2017), Symposium ES1 at the 2017 MRS Spring Meeting (Boston, USA; November 26 – December 1, 2017), and Symposium EN2 at the 2018 MRS Spring Meeting (Phoenix, USA; April 2 - 6, 2018).

I-14. Hongwei Han (HUST, China)



Hongwei Han is Professor at Wuhan National Laboratory for Optoelectronics (WNLO), Huazhong University of Science and Technology (HUST) in China. He obtained his bachelor degree from the College of Chemistry and Molecular Science in 2000 and his doctor degree from the School of Physics and Technology in 2005 at Wuhan University. And then, Dr. Han continued his research work at Monash University of Australia as Postdoc. After that he joined HUST and WNLO in 2008 and began to establish his group of Printable Mesoscopic Photovoltaics & Optoelectronics. Since 2000, Dr. Han has worked on the fully printable mesoscopic solar cells. The characteristic of such device is to print nanocrystalline layer, spacer layer and counter electrode layer on a single conductive substrates layer-by-layer, and then sensitized with dye and filled with electrolyte (or filled with perovskite materials directly). In 2015 his group fabricated 7m² fully printable mesoscopic perovskite solar module. His more than 70 peer-reviewed publications in Science, Nature Comm., J. Am. Chem. Soc. et al. have been published and 22 Patents have been applied within past five years. He was elected as "Changjiang Scholars Program–Distinguished Professor in 2016 and Innovative S&T leading Talents in 2017.

I-15 Lioz Etgar (The Hebrew University of Jerusalem, Israel)



Lioz Etgar obtained his Ph.D. (2009) at the Technion–Israel Institute of Technology and completed post-doctoral research with Prof. Michael Grätzel at EPFL, Switzerland. In his post-doctoral research, he received a Marie Curie Fellowship and won the Wolf Prize for young scientists. Since 2012, he has been a senior lecturer in the Institute of Chemistry at the Hebrew University. On 2017 he received an Associate Professor position. Prof. Etgar was the first to demonstrate the possibility to work with the perovskite as light harvester and hole conductor in the solar cell which result in one of the pioneer publication in this field. (More than 1000 citations in 5 years) Recently Prof. Etgar won the prestigious Krill prize by the Wolf foundation. Etgar's research group focuses on the development of innovative solar cells. Prof. Etgar is researching new excitonic solar cells structures/architectures while designing and controlling the inorganic light harvester structure and properties to improve the photovoltaic parameters.

I-16. Tom Miyasaka (Toin Univ., Japan)



Tsutomu (Tom) Miyasaka received his Doctor of Engineering from The University of Tokyo in 1981. In 2001, after 20 year R&D work at Fuji Photo Film, Co., he moved to Toin University of Yokohama (TUY), Japan, as professor in Graduate School of Engineering, where he served as the dean of Graduate School (2006–2009). In 2004 he has established a TUY-based company, Peccell Technologies, serving as CEO. In 2005 to 2010 he also served as a guest professor at The University of Tokyo. Currently he is a professor of TUY and a fellow of Research Center for Advanced Science and Technology (RCAST) of The University of Tokyo. His research has been focused on the study of light to electric energy conversion involving photochemical processes by enhancing rectified charge transfer at photo-functional interfaces of semiconductor electrodes. He has contributed to the design of low-temperature solution-printing process for fabrication of dye-sensitized solar cells and solid-state hybrid photovoltaic (PV) cells. Since the discovery of the organic inorganic hybrid perovskite as PV material in 2006 and fabrication of high efficiency PV device in 2012, his research has been focused on R&Ds of the halide perovskite PV device. He was awarded a Ministry of Science & Education prize in 2009 on his green sustainable solar cell technology. In 2017 he received Chemical Society of Japan (CSJ) Award and Clarivate (Thomson Reuter) Citation Laureate in 2017 on his research of perovskite photovoltaics. He is presently directing national research projects funded by Japan Science and Technology Agency (JST) and Japan Aerospace Exploration Agency (JAXA).

I-17. David S. Ginger (University of Washington, USA)



David Ginger is the Alvin L. and Verla R. Kwiram Endowed Professor of Chemistry at the University of Washington. He earned dual B.S. degrees in chemistry and physics at Indiana University in 1997, and his Ph.D. from the University of Cambridge, U.K. in 2001. After a joint NIH and DuPont Postdoctoral Fellowship at Northwestern University in Chad Mirkin's lab, he joined the faculty at the University of Washington in Seattle where he is currently the Alvin L. and Verla R. Kwiram Endowed Professor in Chemistry, Washington Research Foundation Distinguished Scholar in Clean Energy, and Adjunct Professor of Physics, and serves as the Chief Scientist of the Washington state funded UW Clean Energy Institute. In 2018, he became Co-Founding Director for Northwest Institute for Materials Physics, Chemistry, and Technology—a joint research collaboration of the U.S. Department of Energy's Pacific Northwest National Laboratory and the University of Washington. His research centers on the physical chemistry of nanostructured materials with applications in optoelectronics, energy and sensing, and his group makes use of techniques ranging from scanning probe microscopy to optical spectroscopy. He is an elected fellow of the AAAS (American Association for the Advancement of Science) and has been named a Research Corporation Cottrell Scholar, a Research Corporation Scialog Fellow in solar energy conversion, an Alfred P. Sloan Foundation Research Fellow, a Camille Dreyfus Teacher-Scholar, and has received the Presidential Early Career Award for Scientists and Engineers, and the ACS Unilever Award in Colloid and Surfactant Science. He published over 140 peer-reviewed scientific papers and received H-index of 58 as of April, 2018.

I-18. Ki Tae Nam (SNU, Korea)



Ki Tae Nam is associate professor at Department of Material Science & Engineering, Seoul National University. He received his B.S. and M.S. from Seoul National University in 2000, 2002 and Ph.D., from Massachusetts Institute of Technology in 2007, respectively. He worked at Lawrence Berkeley National Laboratory, USA from 2007 to 2010 as postdoctoral fellow before joining SNU.

He has been doing researches on Bio-mimetic systems, Nano materials, Artificial-photosynthesis and Bio-mineralization. He has received numerous awards including Korean Presidential Young Scientist Award (Ministry of Science and ICT), Top 100 Excellency in National Research and Development Award (Ministry of Science and ICT), Top 10 nanotechnology Award (KoNTRS), 20th Young Scientist Award (The Korean Institute of Metals and Materials), 21st and 24th Samsung Humantech Paper award (Energy & Environment, Samsung Electronics) and Young Scientist Award (Environmental Energy Division, The Korean Chemical Society). He published over 100 peer-reviewed scientific papers, including Science, Nature Materials, Nature photonics, Nature Energy and Nature Communications, 51 patent applications, 2 book chapters. He received H-index of 30 as of April, 2018

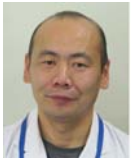
I-19. Prashant Kamat (Notre Dame Univ., USA)



Prashant V. Kamat is a Rev. John A. Zahm, C.S.C., Professor of Science in the Department of Chemistry and Biochemistry and Radiation Laboratory at the University of Notre Dame. He is also a Concurrent Professor in the Department of Chemical and Biomolecular Engineering. He earned his doctoral degree (1979) in Physical Chemistry from the Bombay University, and postdoctoral research at Boston University (1979-1981) and University of Texas at Austin (1981-1983). He joined Notre Dame in 1983.

Professor Kamat has for more than three decades worked to build bridges between physical chemistry and material science to develop advanced nanomaterials that promise cleaner and more efficient light energy conversion. He has published more than 450 scientific papers that have been well recognized by the scientific community (57000+ citations, h-index 125 –Source Web of Science). Thomson-Reuters has featured him as one of the most cited researchers in 2014, 2016 and 2017. He is currently serving as the Editor-in-Chief of ACS Energy Letters. He has also served as the deputy editor of the Journal of Physical Chemistry Letters. He is a member of the advisory board of several scientific journals (Chemical Reviews, Journal of Colloid & Interface Science, ACS Applied Nanomaterials, and Applied Electrochemistry). He was awarded Honda-Fujishima Lectureship award by the Japanese Photochemical Society in 2006, CRSI medal by the Chemical Research Society of India in 2011 and Langmuir lectureship award in 2013. He is a Fellow of the Electrochemical Society (ECS), American Chemical Society (ACS) American Association for the Advancement of Science (AAAS) and Pravasi Fellow of the Indian National Science Academy.

I-20. Seigo Ito (Hyogo Univ., Japan)



Seigo Ito was born in 1970, and received his Ph.D. from the University of Tokyo (Japan) at 2000, with a thesis that was the first to discuss Grätzel-type dye-sensitized solar cells in Japan. He worked in the Laboratory of Professor Shozo Yanagida (Osaka University, Japan), and in the Laboratory of Professor Michael Grätzel, at the Swiss federal Institute of Technology (EPFL) in Lausanne as a postdoctoral scientist, where his efforts focused on the progress of high-efficiency dye-sensitized solar cells. He is currently professor at University of Hyogo from 2007, making new cost-effective energy devices, including non-vacuum-processed silicon solar cells, perovskite solar cells, hydrogen generation system and primary and secondary batteries. He has published around 110 papers with total citation over 17,000 (by Google Scholar).

I-21. Ivan Mora-Sero (Universitat Jaume I, Spain)



Iván Mora-Seró is researcher at Universitat Jaume I (UJI) de Castelló (Spain). His research during the Ph.D. was centered on crystal growth of thin film semiconductors. At 2006 he started his own research line on quantum dot sensitized solar cells. Currently he is leading the Group of Advanced Semiconductors (GAS) at Institute of Advanced Materials (INAM) of UJI. He had been granted with a fellowship at Weizmann Institute, Israel (2016). His research has been focused on crystal growth, nanostructured devices, transport and recombination properties, photocatalysis, electrical characterization of photovoltaic, electrochromic, and water splitting systems, making both experimental and theoretical work. Recent research activity is focused on new concepts for photovoltaic conversion and light emission (LEDs and light amplifiers) based on nanoscaled devices and semiconductor materials following two main lines: semiconductor quantum dots and lead halide perovskites, been this last line probably the current hottest topic in the development of new optoelectronic devices. He has published more than 150 papers. He is included in the 2016 and 2017 list of Highly Cited Researchers of the Web of Science.

I-22. Subodh Mhaisalkar (NTU, Singapore)



Subodh Mhaisalkar is the Tan Chin Tuan Centennial Professor in the School of Materials Science & Engineering at the Nanyang Technological University (NTU), Singapore. Subodh is also the Associate Vice President Research (Strategy and Partnerships) and the Executive Director of the Energy Research Institute @ NTU (ERI@N), a pan-University multidisciplinary research institute for innovative energy solutions. Prior to joining NTU in 2001, Subodh has over 10 years of research and engineering experience in the microelectronics industry and his areas of expertise and research interests include semiconductor technology, perovskite solar cells, printed electronics, and energy storage. Subodh received his Bachelors' degree from IIT-Bombay and his MS/Ph.D. degrees from The Ohio State University.

I-23. Xiaolin Zheng (Stanford U., USA)



Xiaolin Zheng is an Associate Professor of Mechanical Engineering at Stanford University. She received her Ph.D. in Mechanical & Aerospace Engineering from Princeton University (2006), B.S. in Thermal Engineering from Tsinghua University (2000). Prior to joining Stanford in 2007, she did her postdoctoral work in the Department of Chemistry and Chemical Biology at Harvard University. Her research interests include flame synthesis of nanomaterials and their applications in solar energy conversion, combustion of nanomaterials and developing manufacturing methods for flexible electronic devices. Her research has been honored with awards including the Resonate Award from Resnick Institute at Caltech (2016), Nano Letters Young Investigator Lectureship (2015), MIT Technology Review (2013), one of the 100 Leading Global Thinkers by the Foreign Policy Magazine (2013), Presidential Early Career Award for Scientists and Engineers (PECASE) from the White House (2009), Young Investigator Awards from the ONR (2008) and DARPA (2008), Terman Fellowship from Stanford (2007), and Bernard Lewis Fellowship from the Combustion Institute (2004).

I-24. Licheng Sun (KTH Royal Institute of Technology, Sweden)



Prof. **Licheng Sun** received his PhD degree in 1990 from Dalian University of Technology (DUT), and went to Germany as a postdoc at Max-Planck-Institut für Strahlenchemie with Dr. Helmut Görner (1992-1993), and then as an Alexander von Humboldt postdoc at Freie Universität Berlin (1993-1995) with Prof. Dr. Harry Kurreck. He moved to KTH, Stockholm in 1995 as a postdoc with Prof. Björn Åkermark, became assistant professor in 1997 at KTH, associate professor in 1999 at Stockholm University and full professor in 2004 at KTH. He is presently also a distinguished professor at DUT, and director of DUT-KTH Joint Education and Research Center on Molecular Devices. His research interests cover artificial photosynthesis (solar fuels), dye sensitized solar cells, perovskite solar cells. He has made outstanding contribution to the design and synthesis of molecular catalysts for water oxidation and deep insight studies on the reaction mechanisms of O-O bond formation. Prof. Sun has published more than 500 peer reviewed papers in well-known international scientific journals including *Science*, *Nature Chemistry*, *Nature Communications*, *Advanced Materials*, *Angew. Chem. Int. Ed.*, *J. Am. Chem. Soc.* and *Energy Environmental Sci.*, with total number of citations >30 000, and H-index of 83 (*Web of Science*). He serves as editorial board chairman of *ChemSusChem*, associate editor of *J. Energy Chemistry*. He is the recipient of Ulla och Stig Holmquist Prize in Organic Chemistry 2013, Arrhenius Medal 2014, Smart Energy Technology Award 2016 from International Association of Advanced Materials, and Wallmark Prize 2016 from the Royal Swedish Academy of Sciences, elected as Member (No. 1775) of the Royal Swedish Academy of Engineering Sciences (IVA) 2017, Thomson Reuters Highly Cited Researcher 2014 and 2017.

I-25. Jooho Moon (Yonsei U, Korea)



Jooho Moon is a professor in the Department of Materials Science and Engineering at the Yonsei University, Seoul, Korea. He holds an MS and PhD in materials science and engineering from the University of Florida. He did his postdoctoral research in the Materials Processing Center at MIT from 1996 to 1998. He was awarded a Japan Society of the Promotion of Science (JSPS) fellowship in 1998. He joined the faculty at Yonsei University as an assistant professor in 2000, and was promoted to professor in 2009. His research interests include ink-jet printing of self-assembling colloids and functional nanoparticles, printed electronics and displays, micro solid oxide fuel cells, solar cells, and organic-inorganic hybrid materials. He has co-authored more than 140 publications in peer-reviewed journals.

I-26. Shuzi Hayase (KIT, Japan)




Shuzi Hayase is professor in Kyushu National Institute of Technology, Japan. He graduated from Osaka University in 1978 and received Ph.D from Osaka University in 1983. He joined R&D Center in Toshiba from 1978 to 2000, during which he was engaged in development of ULSI lithography, solar cells, direct methanol fuel cells, and polysilanes. He joined polysilane research in Robert West group of Wisconsin University (US) from 1988 to 1990. He is a professor of Kyushu Institute of Technology (National Institute) since 2001. From 2009 to 2017, he was a Supervisor of PRESTO project (Japan Science and Technology Agency (JST), "Photoenergy conversion systems and materials for the next generation solar cells" project). From 2012 to 2016, he was Dean of graduate school of life science and systems engineering, Kyushu Institute of Technology. From 2016 to 2018, he was Executive Director, vice-President of Kyushu Institute of Technology. His research interest is printable solar cells and thermoelectric devices. He received the following awards: Kamura award in 2017 on printable solar cells. Award for Technological Development by the Japan Electrical Manufacturers' Association in 1996, about materials for high insulating properties. Chemistry Society of Japan Award for Technological Development: Awarded for distinguished contributions in technological development in chemistry industry in 1992, on Ring opening catalyst for electrical devices. National Commendation for Invention by Japan Institute of Invention and Innovation in 1987, on Ring-opening catalyst for electrical devices.

I-27. Nam-Gyu Park (SKKU, Korea)



SISF 2018 Program Table

	Time	June 27 (Wed)	June 28 (Thu)	June 29 (Fri)
Morning	8:30 - 9:00	Registration	Registration	Registration
	9:00 - 9:30	Tutorial I (Jin Young Kim)	Kylie Catchpole	Lioz Etgar
	9:30 - 10:00		Kai Zhu	Tom Miyasaka
	10:00 - 10:30	 Coffee Break	Hiroshi Segawa	David S. Ginger
	10:30 - 11:00	Tutorial II (Jin Young Kim)	 Coffee Break	 Coffee Break
	11:00 - 11:30		Jangwon Seo	Ki Tae Nam
	11:30 - 12:00		Anders Hagfeldt	Prashant Kamat
Lunch	12:00 - 13:00		Lunch	Lunch
Afternoon	13:00 - 13:30	Opening Remark	Yabing Qi	Seigo Ito
	13:30 - 14:00	Michael Gratzel	Hongwei Han	Ivan Mora-Sero
	14:00 - 14:30	Kwanghee Lee	Excursion	Subodh Mhaisalkar
	14:30 - 15:00	Atsushi Wakamiya		Xiaolin Zheng
	15:00 - 15:30	 Coffee Break		 Coffee Break
	15:30 - 16:00	Henk Bolink		Licheng Sun
	16:00 - 16:30	Yang Yang		Jooho Moon
	16:30 - 17:00	Jinsong Huang		Shuzi Hayase
	17:00 - 17:30	Michael Saliba		Nam-Gyu Park
	17:30 - 18:00			Closing Remark
All Invited Speakers: 30 min including discussion (25 min talk and 5 min discussion)				

Program

June 27(Wed)

- 09:00-10:15 (T-1) J. Y. Kim
10:15-10:30 *Coffee Break*
10:30-11:45 (T-1) J. Y. Kim
- 13:00-13:30 *Opening Remark*
- 13:30-15:00** **Presider**
13:30-14:00 (I-1) M. Grätzel
14:00-14:30 (I-2) K. Lee
14:30-15:00 (I-3) A. Wakamiya
- 15:00-15:30 *Coffee Break*
- 15:30-17:30** **Presider**
15:30-16:00 (I-4) H. J. Bolink
16:00-16:30 (I-5) Y. Yang
16:30-17:00 (I-6) J. Huang
17:00-17:30 (I-7) M Saliba

June 28 (Thu)

- 09:00-10:30** **Presider**
09:00-09:30 (I-8) K. Catchpole
09:30-10:00 (I-9) K. Zhu
10:00-10:30 (I-10) H. Segawa
- 10:30-11:00 *Coffee Break*
- 11:00-12:00** **Presider**
11:00-11:30 (I-11) J. Seo
11:30-12:00 (I-12) A. Hagfeldt
- 12:00-13:00 *Lunch (Lunch Box)*
- 13:00-14:30** **Presider**
13:00-13:30 (I-13) Y. Qi
13:30-14:00 (I-14) H. Han

14:00-18:00 **Excursion**

June 29 (Fri)

- 09:00-10:30** **Presider**
09:00-09:30 (I-15) L. Etgar

09:30-10:00 (I-16) T. Miyasaka
10:00-10:30 (I-17) D. Ginger

10:30-11:00 *Coffee Break*

11:00-12:00 **Presider**

11:00-11:30 (I-18) K. T. Nam
11:30-12:00 (I-19) P. Kamat

12:00-13:00 *Lunch (Lunch Box)*

13:00-15:00 **Presider**

13:00-13:30 (I-20) S. Ito
13:30-14:00 (I-21) I. Mora-Sero
14:00-14:30 (I-22) S. Mhaisalkar
14:30-15:00 (I-23) X. Zheng

15:00-15:30 *Coffee Break*

15:30-16:50 **Presider**

15:30-16:00 (I-24) L. Sun
16:00-16:30 (I-25) J. H. Moon
16:30-17:00 (I-26) S. Hayase
17:00-17:30 (I-27) N.-G. Park

17:30-18:00 *Closing Remark*