

# NANO KOREA 2021

## July 7~9, KINTEX, Korea

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### Prof. Nam-Gyu Park

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**Nam-Gyu Park** is Distinguished professor and SKKU-Fellow in School of Chemical Engineering at Sungkyunkwan University (SKKU). He received his B.S. degree in chemical education, M.S. and Ph.D. degrees in chemistry from Seoul National University in 1988, 1992 and 1995, respectively. He worked at ICMCB-CNRS, France, from 1996 to 1997 and at National Renewable Energy Laboratory, USA, from 1997 to 1999 as postdoctoral researchers. He was director of solar cell research center at Korea Institute of Science and Technology (KIST) from 2005 to 2009 and principal scientist at Electronics and Telecommunications Research Institute (ETRI) from 2000 to 2005 before joining SKKU as a full professor in 2009. He is a fellow of Korean Academy of Science and Technology (KAST) since 2017. He has been working on high efficiency mesoscopic nanostructured solar cells since 1997. *He is pioneer of solid-state perovskite solar cell, which was first developed in 2012.* He was selected as *a New Class of Nobel Prize-Worthy Scientist* in September 20, 2017 and included in highly cited researchers (HCR, top 1% scientists) in 2017, 2018, 2019 and 2020 by Clarivate Analytics. He received awards including Scientist Award of the Month (2008), KIST Award of the Year (2009), Dupont Science and Technology Award (2010), SKKU fellowship (twice 2013 and 2018), PVSEC Hamakawa Award (2015), Dukmyung KAST Engineering Award (2016), ACS-KCS Excellence Award (2018), and Samsung *Ho-Am Prize* (2018). Prof. Park has currently more than 330 refereed publications and more than 70 patents. He received H-index of 98 (google scholar). He is Senior Editor of ACS Energy Letters and serves on the Editorial Advisory Board for Chem. Rev., ChemSusChem, and Solar RRL.

#### ◆ Education

1981-1988 Seoul National University, Chemical Education, BS

1989-1992 Seoul National University, Chemistry, MS

1992-1995 Seoul National University, Chemistry, PhD (Major: Inorganic Solid

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State Chemistry)

### ◆ Professional Experience

1996.3 - 1997.5: France ICMCB-CNRS, post-doc  
1997.6 - 1999.12: National Renewable Energy Laboratory (NREL), post-doc  
2000.1 - 2005.11: ETRI, Korea, Principal scientist  
2005.12 - 2009.6: KIST, Korea, Director of Solar Cell Research Center  
2017.1 - : KAST (Korean Academy of Science and Technology), Fellow  
2009.7 - : Sungkyunkwan University (SKKU), School of Chemical Engineering, Professor/SKKU Fellow

### ◆ Selected Publications

1. Scalable fabrication and coating methods for perovskite solar cells and solar modules, *Nature Materials Review* 5, 333–350 (2020)
2. High-Efficiency Perovskite Solar Cells, *Chem. Rev.* 120, 7867–7918 (2020)
3. Multifunctional Chemical Linker Imidazoleacetic Acid Hydrochloride for 21% Efficient and Stable Planar Perovskite Solar Cells, *Adv. Mater.* 1902902 (2019)
4. Bi-facial stamping for High Efficiency Perovskite Solar Cells, *Energy & Environ. Sci.*, 12, 308 (2018)
5. Printable organometallic perovskite enables large-area, low-dose X-ray imaging, *Nature*, 550, 87 (2017)
6. Towards stable and commercially available perovskite solar cells, *Nature Energy*, 1, 16152 (2016)
7. Self-formed grain boundary healing layer for highly efficient CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> perovskite solar cells, *Nature Energy*, 1, 16081, (2016)
8. Growth of CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> cuboids with controlled size for high-efficiency perovskite solar cells, *Nature Nanotechnology*, 9, 927 (2014)
9. Water photolysis at 12.3% efficiency via perovskite photovoltaics and Earth-abundant catalysts, *Science*, 26, 1593 (2014)
10. Mechanism of carrier accumulation in perovskite thin-absorber solar cells, *Nature Communications*, 4, 2242 (2013)
11. Organometal perovskite light absorbers toward a 20% efficiency low-cost solid-state mesoscopic solar cell, *J. Phys. Chem. Letters*, 4, 2423 (2013) (Cover)
12. Lead iodide perovskite sensitized all-solid-state submicron thin film mesoscopic solar cell with efficiency exceeding 9%, *Scientific Reports (Nature Publishing)*, 2, 591 (2012) *Highly cited article*
13. 6.5% efficient perovskite quantum-dot-sensitized solar cell, *Nanoscale*, 3, 4088 (2011)
14. Selective positioning of organic dyes in a mesoporous inorganic oxide films, *Nature Materials*, 8, 665 (2009)

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◆ **H-index: 98** (Google Scholar):

<https://scholar.google.com/citations?user=tjJ2rHQAAAAJ&hl=en&oi=ao>

◆ **ORCID ID:** 0000-0003-2368-6300

### ◆ **Books**

- 1) "Organic-Inorganic Halide Perovskite Photovoltaics" Ed. N.-G. Park, M. Gratzel and T. Miyasaka, **Springer (2016)**, ISBN: 978-3-319-35114-8
- 2) "High Efficiency Mesoscopic Organometal Halide Perovskite Solar Cells" in "Unconventional Thin Film Photovoltaics", Ed. Enrico Da Como, Filippo De Angelis, Henry Snaith, Alison Walker, **Royal Society of Chemistry (2016)**, ISBN: 978-1-78262-293-2
- 3) "Sensitized Mesoscopic Solar Cells" **McGraw-Hill Yearbook of Science and Technology (2015)**, ISBN: 978-0-07-183576-3
- 4) "Perovskite Solar Cell" in "Advanced concepts in photovoltaics", Ed. A.J. Nozik, **Royal Society of Chemistry (2014)**, ISBN: 978-1-84973-591-9
- 5) "Advanced technologies of perovskite-based thin film solar cells" in "Recent development of perovskite thin film solar cells", Ed. T. Miyasaka and H. Segawa, **CMC Publishing Co.**, Japan (2014), ISBN: 978-4-907837-25-9 C3058.
- 6) "Perovskite-based solid state hybrid solar cells" in "Trends in Advanced Sensitized and Organic Solar Cells", Ed. T. Miyasaka, **CMC Publishing Co.**, Japan (2012), ISBN: 978-4-7813-0620-9 C3054
- 7) "Metal oxide nanostructures and their photovoltaic applications" in Metal Oxide Nanostructures and Their Applications, Ed. Ahmad Umar, **American Science Publisher**, USA (2009), ISBN: 1-58883-170-1
- 8) "Research trend of dye-sensitized solar cell in Korea" in "Recent Advances in Research and Development for Dye-Sensitized Solar Cells II", Ed. H. Arakawa, **CMC Publishing Co.**, Japan (2007), ISBN: 978-4-88231-665-7 C3054

### ◆ **Awards**

- ▶ Scientist Award of the Month (Oct. 13, 2008, Korean Government)
- ▶ KIST Award of Month (Aug. 8, 2008, KIST)
- ▶ Kyunghang Electricity and Energy Award (Oct. 8, 2008, Korean Government)
- ▶ Best KIST Award (Feb. 10, 2009, KIST)
- ▶ Dupont Science and Technology Award (May 27, 2010, Dupont Korea)
- ▶ SKKU Fellowship (Feb. 26, 2013, SKKU)
- ▶ 100 National Outstanding Awards (Aug. 28, 2013, Korean Government)
- ▶ MRS Outstanding Research Award (Apr. 24, 2014, MRS, USA)
- ▶ WCPEC-6 Paper Award (Nov. 27, 2014, Kyoto, Japan)

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- ▶ Hamakawa Award of PVSEC (Nov. 16, 2015, Busan, Korea)
- ▶ Dukmyung KAST Engineering Award (Nov. 28, 2016, KAST)
- ▶ Outstanding Paper Award (July 13, 2017, Nano Convergence, Springer Nature)
- ▶ Citation Laureates (September 20, 2017, Clarivate Analytics)
- ▶ Highly Cited Researchers (November 15, 2017, Clarivate Analytics)
- ▶ SKKU Fellowship (Feb. 22, 2018, SKKU)
- ▶ ACS-KCS Excellence Award (April 19, 2018, American Chemical Society)
- ▶ Lee Hsun Lecture Award (April 27, 2018, Chinese Academy of Sciences)
- ▶ **Ho-Am Prize** (June 1, 2018, Ho-Am Foundation)
- ▶ Prime Minister Award (July 11, 2018, No. 6912)
- ▶ Science Minister Award (July 18, 2018, No. 25595)
  
- ▶ Highly Cited Researchers (November 27, 2018 Clarivate Analytics)
- ▶ Scientist award of the year selected by journalists (November 29, 2018)
- ▶ Highly Cited Researchers (November 19, 2019 Clarivate Analytics)
- ▶ The 1<sup>st</sup> Jin-Ho Choy Academic Award (October 20, 2020 Korean Chemical Society)
- ▶ Highly Cited Researchers (November 19, 2020 Clarivate Analytics)
- ▶ SKKU Fellowship (Feb. 17, 2021, SKKU)

### ◆ Journal Editor and Editorial Board

- ▶ Senior Editor: ACS Energy Letters, ACS (2019 ~)
- ▶ Associate Editor: Sustainable Energy & Fuel, RSC (2017 ~2018)
- ▶ Section Editor: Current Opinion, ECS (2018)
- ▶ Guest Editor: Materialstoday Energy, Elsevier (2017)
- ▶ Editorial Board: ChemSusChem, Wiley (since January 2016 ~)
- ▶ Editorial Board: Energy Conversion Materials, Elsevier (since January 2016 ~)
- ▶ Editorial Advisory Board: RRL Solar, Wiley (since January 2016 ~)
- ▶ Editorial Advisory Board: ACS Energy Letters, ACS (since Jun 2016 ~)
- ▶ Editorial Board: Nano-Micro Letters, SpringerOpen (since Jun 2016 ~)
- ▶ Editorial Advisory Board: Chemical Reviews, ACS (since October 2018 ~)