

Do Young Kim

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SUMMARY

- ✓ Experienced inventing and developing the novel semiconductor/display devices such as an Infrared (IR) sensitive OLED using emerging organic and inorganic materials.
- ✓ Experienced in all the TFT fabrication processes, including a device design, a thin film deposition (sputter, PECVD), an annealing (furnace, RTA, excimer laser), and a photolithography, as well as the TFT evaluation.

PROFESSIONAL EXPERIENCE

- **Chief Scientific Officer and co-founder, NIRVision, LLC, Gainesville, FL**
May 2009 ~ present (4 years 7 months)

Key accomplishments:

- Invented and developed IR sensitive OLED by integrating an OLED with a PbS colloidal quantum dots (CQDs) IR sensitizer
- Invented and developed solution processed oxide p-n heterojunction ultra violet (UV) photodetector using NiO/ZnO nanomaterials
- Invented and developed solution processed high gain PbS CQDs IR photodetector using a NiO electron blocker

- **Associate Research Scientist, Organic Electronic Materials and Devices Lab. (Dr. F. So group), Department of Materials Science & Engineering, University of Florida, Gainesville, FL**
February 2014 ~ present (4 months)

Key accomplishments:

- Initiated and developed a organic permeable metal based bipolar transistor for active matrix OLED displays
- Initiated and developed a solution processed oxide hole transporting layer (HTL) for solution processed small molecule OLED
- Studied an anode interlayer for enhancement in charge extraction in organic solar cells
- Developed tandem OLED with a MoOx based interconnecting layer

- **Vice President (Devices) and co-founder, nVerPix, LLC, Gainesville, FL**
October 2010 ~ present (3 years 1 month)

Key accomplishments:

- Initiated and developed carbon nanotube enabled vertical organic light emitting transistor (CN-VOLET) for active matrix OLED displays

- **Postdoctoral Associate, Organic Electronic Materials and Devices Lab. (Dr. F. So group), Department of Materials Science & Engineering, University of Florida, Gainesville, FL**
July 2009 ~ present (4 years 8 months)

Key accomplishments:

- Initiated and developed a organic permeable metal based bipolar transistor for active matrix OLED displays
- Initiated and developed a solution processed oxide hole transporting layer (HTL) for solution

processed small molecule OLED

- Studied an anode interlayer for enhancement in charge extraction in organic solar cells
- Developed tandem OLED with a MoO_x based interconnecting layer

- **Research Assistant, Organic Electronic Materials and Devices Lab. (Dr. F. So group), Department of Materials Science & Engineering, University of Florida, Gainesville, FL**
August 2005 ~ April 2009 (3 years 8 months)

Key accomplishments:

- Initiated and developed IR sensitive OLED with organic IR sensitizer
- Studied the effect of the MoO₃ interlayer on both small molecule and polymer solar cells
- Initiated and developed CN-VOLET for active matrix OLED displays

- **Researcher, Samsung Advanced Institute of Technology, Yong-in, South Korea**
January 2002 – July 2006 (4 years and 6 months)

Key accomplishments:

- Initiated and developed low temperature poly-Si (LTPS) thin film transistor (TFT) on plastic substrate for flexible active matrix displays
- Set up the TFT fabrication systems such as a sputter, a plasma enhanced chemical vapor deposition (PECVD), an ion implanter, and an excimer laser annealing system
- Set up the TFT fabrication process and the TFT evaluation tools

- **Research Assistant, TFT-LCD research center, Department of Physics, Kyung Hee University, Seoul, South Korea**
September 1999 – January 2002 (2 years 5 months)

Key accomplishments:

- Developed an a-Si TFT with low-resistivity metal line
- Developed a poly-Si thin film using Ni silicide mediated crystallization for poly-Si TFT
- Designed 2 inch field sequential liquid crystal display (FSLCD) panel
- Developed a nc-Si thin film using Ni silicide mediated crystallization for visible emitting
- Studied viewing angle of LCD window for auto-welding mask with OTOS, Co.

EDUCATION

- **Ph.D Degree in Materials Science and Engineering**, University of Florida, 2009
Thesis Title: Organic photovoltaic cells and organic up-conversion devices
Advisor: Dr. Franky So
- **M.S Degree in Physics**, Kyung Hee University, 2002
Thesis Title: Strong visible PL on the nanocrystalline-Si film by Ni silicide mediated crystallization
Advisor: Dr. Jin Jang
- **B.S Degree in Physics**, Kyung Hee University, 1999
Graduated at the top of the class in department of physics

PATENTS AND PUBLICATIONS

- I have total 31 publications, 70 presentations, and 36 US patents issued, published, or applied for.

#JOURNAL PUBLICATIONS

1. "Effect of nano-porosity on high gain permeable metal-base transistors" Hyunggeun Yu, Jong Hyun Kim, Wenchao Chen, **Do Young Kim**, Jing Guo, and Franky So, **2014, Adv. Funct. Mater.**, Accepted.
2. "All Solution-Processed Inorganic/Organic Hybrid Permeable Metal-Base Transistor" Jong Hyun Kim, Hyunggeun Yu, Rui Liu, **Do Young Kim**, and Franky So, **2014, Small**, Online published (DOI: 10.1002/sml.201303959).
3. "Air-Stable, Solution-Processed Oxide p-n Heterojunction Ultraviolet Photodetector" **Do Young Kim**, Jiho Ryu, Jesse Manders, Jaewoong Lee, and Franky So, **2014, ACS Appl. Mater. Interfaces**, 6 (3), 1370.
4. "PbSe nanocrystals-based infrared-to-visible up-conversion device" **Do Young Kim**, Kaushik Roy Choudhury, Jae Woong Lee, Dong Woo Song, Galileo Sarasqueta, and Franky So, **2011 Nano Lett.**, 11, 2109.
5. "Low-Voltage, Low-Power, Organic Light-Emitting Transistors for Active Matrix Displays" M. A. McCarthy, B. Liu, E. P. Donoghue, I. Kravchenko, **D. Y. Kim**, F. So, A. G. Rinzler, **2011 Science**, 332, 570.
6. "Reorientation of the High Mobility Plane in Pentacene Based Carbon Nanotube Enabled Vertical Field Effect Transistors" Mitchell McCarthy, Bo Liu, Ramesh Jayaraman, Stephen Gilbert, **Do Young Kim**, Franky So, and Andrew Rinzler, **2011 ACS Nano**, 5 (1), 291.
7. "Energy level evolution of air and oxygen exposed molybdenum trioxide films" Irfan, Huanjun Ding, Yongli Gao, Cephass Small, **Do Young Kim**, Jegadesan Subbiah, and Franky So, **2010 Appl. Phys. Lett.**, 96, 243307.
8. "Organic infrared up-conversion device" **Do Young Kim**, Dong Woo Song, Neetu Chopra, Pieter De Somer, and Franky So, **2010 Adv. Mater.**, 22, 2260 *Featured on MaterialsViews.com*.
9. "Energy level evolution of molybdenum trioxide interlayer between indium tin oxide and organic semiconductor" Irfan, Huanjun Ding, Yongli Gao, **Do Young Kim**, Jegadesan Subbiah, and Franky So, **2010 Appl. Phys. Lett.**, 96, 073304.
10. "MoO₃/poly(9,9-dioctylfluorene-co-N-[4-(3-methylpropyl)]-diphenylamine) double-interlayer effect on polymer solar cell" Jegadesan Subbiah, **Do Young Kim**, Michael Hartel, and Franky So, **2010 Appl. Phys. Lett.**, 96, 063303.
11. "Effect of molybdenum oxide interlayer on organic photovoltaic cells" **Do Young Kim**, Jegadesan Subbiah, Galileo Sarasqueta, Franky So, Huanjun Ding, Irfan and Yongli Gao, **2009 Appl. Phys. Lett.**, 95, 093304 **Ranked 6th in Top 20 Most Downloaded Articles** during Sep. 2009.
12. "SnPc:C₆₀ bulk heterojunction organic photovoltaic cells with MoO₃ interlayer" **Do Young Kim**, Galileo Sarasqueta, and Franky So, **2009 Sol. Energy Mater. Sol. Cells**, 93, 1452.
13. "Aluminum Phthalocyanine Chloride/C₆₀ Organic photovoltaic cells with high open circuit voltage" **Do Young Kim**, Franky So, and Yongli Gao, **2009 Sol. Energy Mater. Sol. Cells**, 93, 1688.
14. "Electronic structure and interactions of LiF doped tris (8-hydroxyquinoline) aluminum (Alq)" Huanjun Ding, Kiwan Park, Yongli Gao, **Do Young Kim**, Franky So, **2009 Chem. Phys. Lett.**, 473, 92.
15. "Organic/inorganic nanocomposites for high-dielectric-constant materials" Galileo Sarasqueta, Kaushik Roy Choudhury, **Do Young Kim** and Franky So, **2008 App. Phys. Lett.**, 93, 123305.
16. "Carbon Nanotube Enabled Vertical Field Effect and Light Emitting Transistors" B. Liu, M. McCarthy, Y. Yoon, **D. Kim**, F. So, P. Holloway, J. R. Reynolds, J. Guo, and A. G. Rinzler, **2008 Adv. Mater.**, Vol. 20, 1.
17. "Oxygen effect on laser crystallization of sputtered a-Si film on plastic substrate" **Do Young Kim**, Jong Man Kim, Ji Sim Jung, Jang Yeon Kwon, Hans S. Cho, Kyung Bae Park, Hyuck Lim, and Takashi Noguchi, **2006 Jpn. J. Appl. Phys.**, Vol. 45, L74.
18. "A New Approach of Polycrystalline Silicon Film on Plastic Substrate Prepared by Ion Beam Deposition Followed by Excimer Laser Crystallization at Room Temperature" Jang Yeon Kwon, Hyuck Lim, Kyung Bae Park, Ji Sim Jung, **Do Young Kim**, Hans S. Cho, Seok Pil Kim, Young Soo Park, Jong Man Kim, and Takashi Noguchi, **2006 Jpn. J. Appl. Phys.**, Vol. 45, 4362.
19. "Low-Temperature Process for Advanced Si Thin Film Transistor Technology" Takashi Noguchi, Jang Yeon Kwon, Ji Sim Jung, Jong Man Kim, Kyung Bae Park, Hyuck Lim, **Do Young Kim**, Hans S. Cho, Hua Xian Yin, and Wenxu Xianyu, **Jpn. 2006 J. Appl. Phys.**, Vol. 45, 4321.

20. "Amorphous Silicon Film Deposition by Low Temperature Catalytic Chemical Vapor Deposition (<150°C) and Laser Crystallization for Polycrystalline Silicon Thin-Film Transistor Application" Sung-Hyun Lee, Wan-Shick Hong, Jong-Man Kim, Hyuck Lim, Kyung-Bae Park, Chul-Lae Cho, Kyung-Eun Lee, **Do-Young Kim**, Ji-Sim Jung, Jang-Yeon Kwon, Takashi Noguchi, **2006 Jpn. J. Appl. Phys.**, Vol. 45, L227.
21. "Advanced Poly-Si TFT with Fin-Like Channels by ELA" Huaxiang Yin, Wenxu Xianyu, Hans Cho, Xiaoxin Zhang, Jisim Jung, **Doyoung Kim**, Hyuck Lim, Kyungbae Park, Jong Man Kim, Jangyeon Kwon and T. Noguchi, **2006 IEEE Electron. Device Letters**, Vol. 27, 357.
22. "Ion Shower Doping of Polysilicon Films on Plastic Substrates for Flexible TFT Arrays" Jong Man Kim, Wan-Shick Hong, Sunghyun Lee, **Do Young Kim**, Ji Sim Jung, Jang Yeon Kwon and Takashi Noguchi, **2006 Electrochemical and Solid-State letters**, 9 (7) H61.
23. "Ultra-Low temperature poly-Si thin film transistor for Plastic substrate" **Do Young Kim**, Jang Yeon Kwon, Ji Sim Jung, Kyung Bae Park, Hans S. Cho, Hyuck Lim, Jong Man Kim, Huaxiang Yin, Xiaoxin Zhang and Takashi Noguchi, **2006 J. Korean Phys. Soc.**, Vol. 48, S61.
24. "Ultra-low temperature process by Ion shower doping Technique for poly-Si TFT on plastic" Jong Man Kim, Hyuck Lim, **Do Young Kim**, Ji Sim Jung, Jang Yeon Kwon and Takashi Noguchi, **2006 J. Korean Phys. Soc.**, Vol. 48, S51.
25. "Ultra low sheet resistance on poly silicon film by excimer laser activation" Hyuck Lim, Huaxiang Yin, Wenxu Xianyu, Jang Yeon Kwon, Xiaoxin Zhang, Hans S. Cho, Jong Man Kim, Kyung Bae Park, **Do Young Kim**, Ji Sim Jung and Takashi Noguchi, **2006 J. Korean Phys. Soc.**, Vol. 48, S47.
26. "Low temperature poly-Si thin film transistor on plastic substrates" Jang Yeon Kwon, **Do Young Kim**, Hans S. Cho, Kyung Bae Park, Ji Sim Jung, Jong Man Kim, Youngsoo Park, Takashi Noguchi, **2005 IEICE TRANS. ELECTRON.**, VOL. E88-C, NO. 4, 667.
27. "Ultra-Low Temperature Poly-Si TFT Process" T. Noguchi, Jangyeon Kwon, Jisim Jung, Jong Man Kim, Kyungbae Park, Hyuck Lim, Hans Cho, Xiaoxin Zhang, Huaxiang Yin, Xianyu Wenxu, and **Doyoung Kim**, **2005 IEICE TRANS. ELECTRON.**, Vol. 105, 37.
28. "The effect of thermal annealing on sputtered a-Si film" **Do Young Kim**, Hans S. Cho, Kyung Bae Park, Jang Yeon Kwon, Ji Sim Jung, and Takashi Noguchi, **2004 J. Korean Phys. Soc.**, Vol. 45, S847.
29. "Poly-Si TFT Technology" Takashi Noguchi, **D. Y. Kim**, J. Y. Kwon, Y. S. Park, **2004 KIDS**, Vol. 5, No. 1, 25.
30. "SiO₂ Film Formed by Inductivity Coupled Plasma Chemical Vapor Deposition at Low Temperature for Poly-Si TFT" Ji Sim Jung, Jang Yeon Kwon, Youngsoo Park, **Do Young Kim**, Hans S. Cho, Kyung Bae Park, Wenxu Xianyu, Huasiang Yin, Takashi Noguchi, **2004 J. Korean Phys. Soc.**, Vol. 45, S861.
31. "Strong Visible PL from nc-Si thin film by Ni silicide mediated crystallization" **Do Young Kim**, Ji Sim Jung, Young Rae Jang, Kun Ho Yoo, Jin Jang, **2003 Physica E**, Vol.16, 400.

#SELECTIVE PATENTS, LICENSES AND DISCLOSURES

< Novel semiconductor devices using organic and colloidal inorganic nanomaterials >

1. "Method and apparatus for sensing infrared radiation", US 20120286296. [Licensed by Nanoholdings, LLC., CT.](#)
2. "Method and apparatus for providing a charge blocking layer on an infrared up-conversion device", US 20120187295. [Licensed by Nanoholdings, LLC., CT.](#)
3. "Ir photodetectors with high detectivity at low drive voltage", US 20120126204. [Licensed by Nanoholdings, LLC., CT.](#)
4. "Photodetector and upconversion device with gain", WO 2013028232. [Licensed by Nanoholdings, LLC., CT.](#)
5. "Infrared pass visible blocker for upconversion devices", US 8598573. [Licensed by Nanoholdings, LLC., CT.](#)
6. "Up-conversion device with broad band absorber", US 8592801. [Licensed by Nanoholdings, LLC., CT.](#)
7. "Infrared imaging device integrating an ir up-conversion device with a cmos image sensor", WO 2012170456. [Licensed by Nanoholdings, LLC., CT.](#)
8. "Transparent infrared-to-visible up-conversion device", WO 2012170457. [Licensed by Nanoholdings, LLC., CT.](#)
9. "A Method and Apparatus for Detecting Infrared Radiation with Gain", WO 2013003850. [Licensed by Nanoholdings, LLC., CT.](#)
10. "Method and apparatus for integrating an infrared (ir) photovoltaic cell on a thin film photovoltaic cell", US 20140060613. [Licensed by Nanoholdings, LLC., CT.](#)

11. "Method and apparatus for providing a window with an at least partially transparent one side emitting oled lighting and an ir sensitive photovoltaic panel", US 20140070191. [Licensed by Nanoholdings, LLC., CT.](#)
12. "Method and apparatus for solid state lighting window by an at least partially transparent, one-side emitting oled", WO 2012138659. [Licensed by Nanoholdings, LLC., CT.](#)
13. "Solution-processed ultraviolet light detector based on P-N junctions of metal oxides", Technology disclosed to the University of Florida 2012. [Licensed by Nanoholdings, LLC., CT.](#)
14. "A novel ir image sensor using a solution processed PbS photodetector", Technology disclosed to the University of Florida 2012. [Licensed by Nanoholdings, LLC., CT.](#)
15. "Infrared driven oled display", WO 2013044200.
16. "Metal oxide transport layer for solution processed small molecule organic light emitting diode", Technology disclosed to the University of Florida 2012.

<Thin film transistors for flexible flat panel display>

17. "Method of fabricating a poly-crystalline silicon thin film and method of fabricating a semiconductor device using the same", US 7563659.
18. "Semiconductor device with modified mobility and thin film transistor having the same", US 7479667.
19. "Method of fabricating a capacitor", US 7439197.
20. "Poly crystalline silicon semiconductor device and method of fabricating the same", US 7414264.
21. "Method of forming channel region of TFT composed of single crystal Si", US 7390706.
22. "Si nanowire substrate, method of manufacturing the same, and method of manufacturing thin film transistor using the same", US 7297615.
23. "Thin film transistor including a polysilicon film", US 7233022.
24. "Thin film transistor with protective cap over flexible substrate, electronic device using the same, and manufacturing method thereof", US 7176488.
25. "Method of forming a polysilicon film and method of manufacturing a thin film transistor including a polysilicon film", US 7923316.
26. "Semiconductor device including single crystal silicon layer and method of manufacturing semiconductor device", US7772711.
27. "Crystalline nanowire substrate, method of manufacturing the same, and method of manufacturing thin film transistor using the same", US 8022408.
28. "Method of fabricating silicon thin film layer", US 20070048983.
29. "Silicon thin film transistor and method of manufacturing the same", US 20060284179.
30. "Organic light emitting display and method of fabricating the same", US20060270097.
31. "Thin film transistor with capping layer and method of manufacturing the same", US 20060220034.
32. "Polycrystalline Si thin film structure and fabrication method thereof and method of fabricating TFT using the same", US 20050263774.
33. "Flexible display and method of manufacturing the same", US 20050153476.
34. "Semiconductor device with modified mobility and thin film transistor having the same", US 20050139923.
35. "Method of fabricating poly-crystalline silicon thin film and method of fabricating transistor using the same", US 20060008957.
36. "Method of preparing semiconductor film on a substrate", US 20060099778.

#PRESENTATIONS

1. "High gain permeable metal-base transistors" Hyeonggeun Yu, Jonghyun Kim, Wenchao Chen, **Do Young Kim**, Jing Guo, and Franky So, MRS Spring meeting 2014, (2014).
2. "Solution processed oxide p-n heterojunction ultraviolet photodetector based on NiO/ZnO films" **Do Young Kim**, Jiho Ryu, Jesse Manders, Jae Woong Lee, and Franky So, MRS Fall meeting 2013, (2013).
3. **(Invited talk)** "Infrared sensitive organic light emitting diode" **Do Young Kim**, Tzung-Han Lai, Jae Woong Lee, Jesse Manders, Jiho Ryu, Dong Woo Song, and Franky So, Organic Photonics+Electronics, part of SPIE Optics+Photonics 2012, (2012).
4. **(Invited talk)** "Low power, red, green and blue carbon nanotube enabled vertical organic light emitting transistors for active matrix OLED displays" Mitchell A. McCarthy, Bo Liu, Evan P. Donoghue, Ivan Kravchenko, **Do Young Kim**, Franky So, Andrew G. Rinzler, IMID 11', (2011).

5. **(Invited talk)** “Hybrid infrared-to-visible up-conversion device” **Do Young Kim**, Jae Woong Lee, Tzung-Han Lai, Dong Woo Song, and Franky So, Photonic devices+Applications, part of SPIE Optics+Photonics 2011, (2011).
6. **(Invited talk)** “Low-Voltage, Low-Power, Organic Light-Emitting Transistors for AMOLED” Mitchell A. McCarthy, Bo Liu, Evan P. Donoghue, Ivan Kravchenko, **Do Young Kim**, Franky So, Andrew G. Rinzler, Photonic devices+Applications, part of SPIE Optics+Photonics 2011, (2011).
7. “Organic light up-conversion devices with hole-blocking layers” Dong Woo Song, **Do Young Kim**, and Franky So, Photonic devices+Applications, part of SPIE Optics+Photonics 2011, (2011).
8. “PbSe QD infrared light up-conversion device” **Do Young Kim**, Dong Woo Song, Galileo Sarasqueta, Kaushik Roy Choudhury, Jae Woong Lee and Franky So, MRS Fall meeting 2010, (2010).
9. “Fabrication of all solution processed infrared to visible up-conversion devices” Galileo Sarasqueta, Kaushik Roy Choudhury, **Do Young Kim**, and Franky So, MRS Fall meeting 2010, (2010).
10. “High detectivity inverted organic near-infrared photodetector” Chi Hang Cheung, Jegadesan Subbiah, Lei Qian, **Do Young Kim**, Chad Amb, John R. Reynolds, and Franky So, MRS Fall meeting 2010, (2010).
11. “Study of charge blocking properties in organic light up-conversion devices” Dong Woo Song, **Do Young Kim**, and Franky So, MRS Fall meeting 2010, (2010).
12. “Organic infrared up-conversion device” **Do Young Kim**, Dong Woo Song, and Franky So, IUMRS-ICEM2010, (2010).
13. **(Invited talk)** “Organic up-conversion devices” **Do Young Kim**, Dong Woo Song, and Franky So, Photonic devices+Applications, part of SPIE Optics+Photonics 2010, (2010).
14. “Double interlayer effect on polymer solar cells” Jegadesan Subbiah, **Do Young Kim**, Irfan, Huanjun Ding, Yongli Gao, and Franky So, Photonic devices+Applications, part of SPIE Optics+Photonics 2010, (2010).
15. “High Detectivity infrared organic photodetectors” **Do Young Kim**, Dong Woo Song, and Franky So, 9th International symposium on functional π -electron systems, (2010).
16. “Effects of Double-Interlayer on Polymer Solar Cells” Jegadesan Subbiah, **Do Young Kim**, Franky So, Chad M. Amb, Pierre M. Beaujuge, John R. Reynolds, Huanjun Ding, Irfan, and Yongli Gao, 9th International symposium on functional π -electron systems, (2010).
17. “Study of charge injection in organic infrared up-conversion devices” Dong Woo Song, **Do Young Kim**, and Franky So, 9th International symposium on functional π -electron systems, (2010).
18. “High Detectivity infrared organic photodetectors” **Do Young Kim**, Dong Woo Song, and Franky So, MRS Spring meeting 10', (2010).
19. “Controlling charge injection in organic infrared up-conversion devices” Dong Woo Song, **Do Young Kim**, and Franky So, MRS Spring meeting 10', (2010).
20. “Organic infrared up-conversion device” **Do Young Kim**, Dong Woo Song, Neetu Chopra, Pieter De Somer, and Franky So, MRS Fall meeting 09', (2009).
21. “Efficient polymer solar cell using transition metal oxide as buffer layer” Jegadesan Subbiah, **Do Young Kim**, Kaushik Roy Choudhury, and Franky So, MRS Fall meeting 09', (2009).
22. “Energy level evolution of varying molybdenum trioxide interlayer between conducting indium tin oxide (ITO) and chloro aluminum phthalocyanine (AlPc-Cl)” Irfan, Huanjun Ding, Yongli Gao, **Do Young Kim**, Jegadesan Subbiah, Galileo Sarasqueta, and Franky So, MRS Fall meeting 09', (2009).
23. “The effect of molybdenum oxide interlayer on organic photovoltaic cells” **Do Young Kim**, Jegadesan Subbiah, Galileo Sarasqueta, Franky So, Photonic devices+Applications, part of SPIE Optics+Photonics 2009, (2009)
24. “Aluminum phthalocyanine chloride/C₆₀ Organic photovoltaic cells with large open circuit voltage” **Do Young Kim**, and Franky So, MRS Fall meeting 08', (2008)
25. “Effect of MoO₃ interface layer on Organic photovoltaic cells” **Do Young Kim**, and Franky So, MRS Fall meeting 08', (2008)
26. “High efficiency Infrared Organic Photodetector” **Do Young Kim**, and Franky So, MRS Fall meeting 08', (2008)
27. “Organic photovoltaic cells with near-infrared sensitivity” **Do Young Kim**, Kaushik Roy Choudhury, Jiyon Song, and Franky So, Photonic devices+Applications, part of SPIE Optics+Photonics 2008, (2008).
28. “High Efficiency Organic Photodetector” **Do Young Kim**, Dong Woo Song, Kaushik Roy Choudhury, and Franky So, MRS spring meeting 08', (2008)

29. "Nanotube enabled thin film transistors utilizing low mobility organic semiconductors" B. Liu, M. McCarthy, Y. Yoon, **D. Kim**, Z. Wu, F. So, P. Holloway, J. R. Reynolds, J. Guo, and A. G. Rinzler, 2008 APS March Meeting (2008).
30. "Novel Hybrid Nanocomposites for High Dielectric Constant Materials" Galileo Sarasqueta, Kasuhik Roy Choudhury, Dong Woo Song, **Do Young Kim**, and Franky So, MRS spring meeting 08' (2008)
31. "Novel Metal-Organic Nano-composites with High Dielectric Constants" **Do Young Kim**, and Franky So, MRS spring meeting 07', (2007)
32. "Advanced Si TFTs formed by Excimer Laser Annealing for System on Insulator" Takashi Noguchi, Jang Yeon Kwon, Kyung Bae Park, Ji Sim Jung, Jong Man Kim, **Do Young Kim** Hyuck Lim, Wenxu Xianyu, Hans S. Cho, and Huaxiang Yin, E-MRS IUMRS ICEM 2006 Spring Meeting, I2 02 (2006).
33. "The effect of the buffer SiO₂ on plastic substrate for laser crystallization of Si films" Ji Sim Jung, **Do Young Kim**, Jong Man Kim, Jang Yeon Kwon, Kyung Bae Park, Hyuck Lim and Takashi Noguchi, International Display Workshop (IDW) 05, (2005).
34. "Characterization of poly-Si TFT array on plastic substrate for AMOLED" Jang Yeon Kwon, **Do Young Kim**, Ji Sim Jung, Jong Man Kim, Hyuck Lim, Kyung Bae Park, Hans S. Cho, Xiaoxin Zhang, Huaxiang Yin, Wenxu Xianyu and Takashi Noguchi, International Display Workshop (IDW) 05, (2005).
35. "Oxygen effect on laser crystallization of sputtered a-Si film on plastic substrate" Jong Man Kim, **Do Young Kim**, Ji Sim Jung, Jang Yeon Kwon, Kyung Bae Park, Hyuck Lim and Takashi Noguchi, International Display Workshop (IDW) 05, (2005).
36. "High quality silicon oxide films prepared by Inductive coupled plasma deposition below 100°C and Poly-Si TFT" Kyung Bae Park, Jang Yeon Kwon, Hyuck Lim, Ji Sim Jung, **Do Young Kim**, Jong Man Kim and Takashi Noguchi, International Display Workshop (IDW) 05, (2005).
37. "The fabrication of the p-type Ultra Low Temperature TFT under 200°C" Hyuck Lim, Kyung Bae Park, Huaxiang Yin, Wenxu Xianyu, Jang Yeon Kwon, Xiaoxin Zhang, Hans S. Cho, Jong Man Kim, **Do Young Kim**, Ji Sim Jung and Takashi Noguchi, International Display Workshop (IDW) 05, (2005).
38. "Ultra Low Temperature Poly Silicon (ULTPS) TFT direct fabricated below 170°C on transparent plastic substrate" Jang Yeon Kwon, **Do Young Kim**, Ji Sim Jung, Jong Man Kim, Hyuck Lim, Kyung Bae Park, Hans S. Cho, Xiaoxin Zhang, Huaxiang Yin, Wenxu Xianyu and Takashi Noguchi, IEDM 05, (2005)
39. "Low Temperature Process for Advanced Si TFT technology" Takashi Noguchi, Jang Yeon Kwon, Ji Sim Jung, Jong Man Kim, Kyung Bae Park, Hyuck Lim, **Do Young Kim**, Hans S. Cho, Xiaoxin Zhang, Huaxiang Yin and Wenxu Xianyu, *AMLCD 05'*, 281 (2005).
40. "High performance poly-Si thin film transistor on plastic substrate" **Do Young Kim**, Jang Yeon Kwon, Ji Sim Jung, Jong Man Kim, Kyung Bae Park, Hyuck Lim, Hans S. Cho and Takashi Noguchi, *AMLCD 05'*, 299 (2005).
41. "New approach of poly-Si film on plastic substrate prepared by ion beam deposition (IBD) followed by excimer laser crystallization at room temperature for flexible AMOLED" Jang Yeon Kwon, Hyuck Lim, Kyung Bae Park, Ji Sim Jung, **Do Young Kim**, Hans S. Cho, Suk Pil Kim, Youngsoo Park, Jong Man Kim and Takashi Noguchi, *AMLCD 05*, 199 (2005).
42. "High performance poly-Si thin film transistor fabricated on plastic substrate" Ji Sim Jung, **Do Young Kim**, Jong Man Kim, Jang Yeon Kwon, Hans S. Cho, Kyung Bae Park, Hyuck Lim and Takashi Noguchi, *Eurodisplay 05*, (2005).
43. "High performance poly-Si TFT direct fabricated on plastic substrate below 170°C" Jang Yeon Kwon, **Do Young Kim**, Ji Sim Jung, Jong Man Kim, Hyuck Lim, Kyung Bae Park, Hans S. Cho, Xiaoxin Zhang, Huaxiang Yin, Wenxu Xianyu and Takashi Noguchi, *IMID 05*, (2005).
44. "Study of Ultra-Low Resistance n-type and p-type Poly-Silicon Film" Hyuck Lim, Huaxiang Yin, Hans S. Cho, Wenxu Xianyu, Jang Yeon Kwon, Xiaoxin Zhang, Jong Man Kim, Kyung Bae Park, **Do Young Kim**, Ji Sim Jung and Takashi Noguchi, *IMID 05*, (2005).
45. "Study of Ultra-Low Resistance n-type and p-type Poly-Silicon Film" Sung-Hyun Lee, Wan-Shick Hong, Jong-Man Kim, Hyuck Lim, Chul-Lae Cho, Kyung-Eun Lee, **Do-Young Kim**, Ji-Sim Jung, Jang-Yeon Kwon and Takashi Noguchi, *IMID 05*, (2005).
46. "Advanced Poly-Si TFT with Fin-Like Channels" Huaxiang Yin, Xianyu Wenxu, Hans Cho, Xiaoxin Zhang, Jisim Jung, **Doyoung Kim**, Hyuck Lim, Kyungbae Park, Jong Man Kim, Jangyeon Kwon and T. Noguchi, *AWAD 05'*, 159 (2005)

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TECHNICAL SKILLS

- **Materials Processing and Fabrication**
Solution based thin film device processing, high vacuum thermal deposition, Plasma enhanced chemical vapor deposition (PECVD), Sputter, Excimer laser annealing system, Photo lithography, Wet etching, Dry etching, Ion implantation and Ion shower for doping
- **Microstructural Analysis**
Transmission Electron Microscopy, Scanning Electron Microscopy, Atomic Force Microscopy, x-ray diffraction, Thin-film Profilometry, Secondary Ion Mass Spectroscopy
- **Optical Characterization**
Absorption and Photoluminescence in UV-visible and infrared, Raman, Fourier Transform Infrared Spectroscopy
- **Electronic and Optoelectronic Characterization**
Transistor characterization, OLED characterization, PV characterization, light emitting transistor characterization, upconversion device characterization, UV, Visible, and IR photodetector characterization, spectral response
- **Project Management**
Major contributions to grant proposals, wrote annual reports for government and industry projects, supervised graduate research in academia, co-ordinated purchase of instruments and high vacuum thin film deposition systems, operation and maintenance of class 100 clean-room

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