

KIYOUL YANG

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Professional Education

California Institute of Technology (Pasadena, US)
Sep. 2010 – Present, Ph.D. in Department of Electrical Engineering

Korea Advanced Institute of Science & Technology (Daejeon, Korea)
Feb. 2008 – Feb. 2010, M.S. in Department of Electrical Engineering
Thesis title: Surface Plasmon-enhanced Organic Light-Emitting Devices

Korea Advanced Institute of Science & Technology (Daejeon, Korea)
Mar. 2004 – Feb. 2008, B.S. in School of Electrical Engineering and Computer Science
Graduation with honor of magna cum laude

Research Interests

- Surface plasmon-enhanced emission/ energy transfer/ absorption/ photocurrent
- Mid-Infrared negative refraction in the quantum metamaterials
- Turbidity suppression by digital optical phase conjugation

Honors and Awards

Atwood Fellowship *Jul. 2010 – Present*

National Scholarship for Science and Engineering students *Mar. 2004 – Feb. 2008*

Research Experience

Visiting Researcher

National Nanofab Center (Deajeon, Korea)

Jun. 2010 “Transparent electrode design on the flexible polymer substrate”
Reference: Chi Won Ahn (Ph.D, Senior Researcher, cwahn@nnfc.re.kr)

Department of Physics, Imperial College London (London, United Kingdom)

Jan. 2010 – May 2010 “Perfect lenses with quantum metamaterials”

Reference: Stefan A. Maier (Professor, s.maier@imperial.ac.uk)

Chris C. Phillips (Professor, chris.phillips@imperial.ac.uk)

Collaboration

Department of Chemical and Biomolecular Engineering, KAIST (Deajeon, Korea)
Nov. 2009 – Jun. 2010 “H1N1 detection using localized surface plasmon resonance”
Reference: Sang Yup Lee (Professor, leesy@kaist.ac.kr)
Tae Jung Park (Research Professor, tjpark@kaist.ac.kr)
Do-kyun Kim (Ph.D, Senior Researcher, kdkmail@kaist.ac.kr)

Korea Institute of Machinery & Materials (Deajeon, Korea)
Oct. 2009 – Jun. 2010 “Surface plasmon enhancement via a nano-imprinting”
Reference: Dae-Geun Choi (Ph.D, Senior Researcher, Iamcdg@kimm.re.kr)

National Nanofab Center (Deajeon, Korea)
May 2008 – Dec. 2009 “Surface plasmon enhanced energy-transfer in an organic light-emitting device,” “Surface plasmon-sensitive nanoparticle-embedded devices”
Reference: Chi Won Ahn (Ph.D, Senior Researcher, cwahn@nnfc.re.kr)

Internship

Samsung Electronics (Yongin, Korea)
Jul. 2009 “SRAM model parameter analysis”
Reference: Yongshik Kim (Ph.D, Principal Engineer, yongshik.kim@samsung.com)

Research Assistance (RA)

Center for Advanced Flexible Display Convergence (National Research Fund)
RA, *Nov. 2007 – Jan. 2010*

High Risk High Return Project (Korea Advanced Institute of Sci & Tech)
RA, *Jun. 2009 – Dec. 2009*

Publications

✚ International Journals

1. K.Y. Yang, C.S. Choi, and K.C. Choi, “Surface plasmons-organic emitter interaction in the Ag nanoparticles near metallic mirror,” *Optics Express*, in preparation.
2. K.Y. Yang, V. Giannini, S.A. Maier, and C. Phillips, “Mid-infrared high resolution imaging in quantum metamaterial,” *Optics Letters*, in preparation.
3. K.Y. Yang, K.C. Choi, I.-S. Kang, and C.W. Ahn, “Surface plasmon resonance enhanced Cu-nanoparticle-embedded films”, *Optics Express* **18**, 16, 2010.
4. K.Y. Yang, K.C. Choi, and C.W. Ahn, “Surface plasmon-enhanced energy transfer in an organic light-emitting device structure”, *Optics Express* **17**, 14, 2009.
 - Featured in the *Nature Photonics as Technology Highlight* **3**, 8, 2009.
 - Ranked on 6th most downloaded paper in *Optics Express* (July, 2009).
 - Selected for the *outstanding annual research achieves 40* from the Ministry of education science & technology and the National research foundation of Korea government (2009)
5. K.Y. Yang, K.C. Choi, and C.W. Ahn, “Surface plasmon-enhanced spontaneous emission rate in an organic light-emitting device structure: cathode structure for plasmonic application”, *Applied Physics Letters* **94**, 17, 2009.
 - Selected for the *Virtual Journal of Ultrafast Science* **8**, 6, 2009.

✚ International conferences

1. [Keynote] K.Y. Yang, S.M. Lee, W.H. Kim, C.S. Choi, and K.C. Choi, “Localized surface plasmon mediated display devices,” *18th International Vacuum Congress* (2010).
2. W.H. Kim, K.H. Cho, K.Y. Yang, C.S. Choi, S.-I. Ahn, K.C. Choi, D.Y. Kim, and O.O. Park, “AC plasma display panel with gold nano-particles inserted into a MgO protective layer”, *SID 2010*.
3. K.Y. Yang, K.C. Choi, and C.W. Ahn, “Organic emitter-plasmon coupling using thermally-evaporated Ag nanocluster layer and its application to organic light-emitting devices”, *MRS Fall meeting 2009*.
4. Y.W. Yeo, K.Y. Yang, and K.C. Choi, “The effect of silver nano-particles on surface plasmon-enhanced OLEDs”, *International Meeting on Information Display 2009*.
5. K.Y. Yang, K.H. Cho, and K.C. Choi, “Enhancement of OLED fluorescence emission using surface plasmon resonance”, *International Conference on Microelectronics and Plasma technology 2008*.

6. S.-H. Kim, J.H. Mun, K.Y. Yang, K. Kim, and K.C. Choi, “Characteristics of the Microplasma generated in a Flexible Plasma Device”, *IEEE International Conference On Plasma Science 2008*.

Patents

+ International patents

1. PCT/KR2009/005733, K.C. Choi; K.Y. Yang, “Organic Light Emitting Diode Device”, 2009.
2. PCT/KR2009/005805, K.C. Choi; S.M. Lee; K.H. Cho; W.H. Kim; K.Y. Yang, “AC plasma display device using metal nanoparticles or nanostructures and method for manufacturing the same”, 2009.

+ Korea patents

1. 10-2010-0039150, K.C. Choi; K.Y. Yang, “Electrical paper panel”, 2010.
2. 10-2009-0110628, K.C. Choi; K.Y. Yang, “Plasmon sensor using metal nanoparticle conducting features”, 2009.
3. 10-2009-0052442, K.C. Choi; S.M. Lee; K.H. Cho; K.Y. Yang; W.H. Kim, “AC-plasma display devices with high the luminous efficacy using selective surface plasmonic resonance of metallic nano-scaled structure according to the emission wavelength and method for manufacturing the same”, 2009.
4. 10-2009-0052441, K.C. Choi; W.H. Kim; K.H. Cho, K.Y. Yang; S.M. Lee, “Method of forming metal nano-particles layer on target substrates using air-spray”, 2009.
5. 10-2009-0055629, K.C. Choi; S.M. Lee; K.H. Cho; K.Y. Yang; W.H. Kim, “UV-LED display device using the surface plasmonic resonance”, 2009.
6. 10-2008-0135896, K.C. Choi; K.H. Cho; K.Y. Yang; S.M. Lee, “Secondary electron emission improved plasma display panel using surface plasmon excitation and method for manufacturing the same”, 2008.
7. 10-2008-0130948, K.C. Choi; S.M. Lee; K.Y. Yang; K.H. Cho, “AC-plasma display devices using the surface plasmonic resonance and the interaction between phosphors and metallic nano-scaled particle or structure”, 2008.
8. 10-2008-0098503, K.C. Choi; K.Y. Yang, “Organic Light Emitting Diode Device”, 2008.
9. **[Registration]** 10-2008-0040758, K.C. Choi; K.Y. Yang, “Fluorescence Enhancement OLED using Surface Plasmon Resonance”, 2008.