**Prof. Jae-Young Choi**

**WORK ADDRESS**

School of Advanced Materials Science & Engineering

SKKU Advanced Institute of Nanotechnology

Sungkyunkwan University (SKKU)

2066 Seobu-ro, Jangan-gu, Suwon,

Gyeonggi-do 440-746, South Korea

Tel: 82-31-290-7353

E-mail: jy.choi@skku.edu

**EDUCATION**

 Ph.D. in Dept. of Mater. Sci. & Eng., KAIST, Daejeon, Korea Mar. 1994 ~ Aug. 1998

• Thesis Topic:Synthesis of perovskite oxide powders under hydrothermal conditions

• Advisor: Prof. Do Kyung Kim

 Ms.D. in Dept. of Inorganic Materials, KAIST, Daejeon, Korea Mar. 1992~Feb. 1994

 • Thesis Topic: synthesis of monosized spherical SiC, Si3N4, and SiC/Si3N4 composite

powders from gel powders derived from sol-gel process

 • Advisor: Prof. Jong Hee Kim

 B.D. in Dept. of Mater. Sci. & Eng., POSTECH, Pohang, Korea Mar. 1988~Feb. 1992

**EMPLOYMENT**

- Professor, SKKU, Suwon, Korea Mar. 2015~Present

 - **Vice President**, Samsung Electronics, Suwon, Korea Jan. 2011~Feb. 2015

 - **Director of Graphene Center**, Samsung Electronics, Suwon, Korea Jan. 2011~Aug. 2013

 - **Director of Multi-Functional Device Group**, Samsung Electronics, May. 2008~Dec. 2010

 Suwon, Korea

 - Project Manager, Samsung Electronics, Suwon, Korea Jan. 2002~May. 2008

 - Principal Researcher, Samsung Electronics, Suwon, Korea Dec.1999~Dec. 2001

 - **Postdoctoral Research Associate,** Ames lab, Iowa, US Oct. 1998~Sept.1999

• Advisor: Prof. Mufit Akins

**SELECTED ACHIEVEMENT**

◾ **HONORS & AWARDS**

- **2018 World 1% Highly Cited Researchers** **(Nov. 2018)**, Clarivate Analytics

- **Research Achievement Award** **(July 2014)**, Samsung Electronics, Development of new 2D materials for bendable mobile touch screen

- **SAMSUNG Best Paper Award** **(Oct. 2009)**, Samsung Electronics, Gold Award (1st rank in

materials division), Development of large-area graphene growth for electronic applications,

Samsung Journal(2009)

- **World Best Paper Award (Oct. 2009)**, Samsung Electronics, Best paper in SAMSUNG ELECTRONICS of the year, Large-scale pattern growth of graphene films for stretchable transparent electrodes, Nature457 706 (2009)

- **World Best Paper Award** **(July 2008)**, Samsung Electronics, Best paper in SAMSUNG ELECTRONICS of the year, Fermi level engineering of single-walled carbon nanotubes by AuCl3 doping, Journal of American Chemical Society, 130 12757 (2008):

◾ **PUBLICATIONS**

- “Direct growth of graphene on rigid and flexible substrates: progress, applications, and challenges”, ***Chemical Society Reviews*** 2017, 46, 6276-6300. **(# of Citations: 55, Impact factor: 40.443)**

- “Selective Gas Transport Through Few-Layered Graphene and Graphene oxide Membranes”, ***Science*** 2013, 342, 91-95. **(# of Citations: 1056, Impact factor: 41.845)**

- “A stamp for all substrates”, ***Nature Nanotechnology*** 2013, 8, 311-312. **(# of Citations: 40, Impact factor: 31.538)**

- “Probing graphene grain boundary with optical microscopy”, ***Nature*** 2012, 490, 235-239. **(# of Citations: 363, Impact factor: 42.778)**

- “High-mobility and low-power thin-film transistors based on multilayer MoS2 crystals”, ***Nature Communications*** 2012, 3, 1011. **(# of Citations: 1386, Impact factor: 12.121)**

- “A role for graphene in silicon-based semiconductor devices”, ***Nature*** 2011, 479, 338-344. **(# of Citations: 688, Impact factor: 42.778)**

- “Large-scale pattern growth of graphene films for stretchable transparent electrodes”, ***Nature*** 2009, 457, 706-710. **(# of Citations: 10999, Impact factor: 42.778)**

- “Carbon nanotube network structuring using two-dimensional colloidal crystal templates”, ***Advanced Materials*** 2008, 20, 457-461. **(# of Citations: 59, Impact factor: 27.398)**

- “Fermi Level Engineering of Single-Walled Carbon Nanotubes by AuCl3 Doping”, ***Journal of American Chemical Society*** 2008, 130, 12757-12761. **(# of Citations: 239, Impact factor: 14.612)**

- “Design of dispersants for the dispersion of carbon nanotubes in an organic solvent”, ***Advanced Functional Materials*** 2007, 17, 1775-1783. **(# of Citations: 95, Impact factor: 16.836)**

* **PATENT**

- **Issued the world’s first original patent of graphene growth in 2007 at Samsung** (Korean patent; Graphene sheet and process of preparing the same, 10-2009-0026568, Filed Sept. 10. 2007, US patent; Graphene sheet and process of preparing the same, US8,075,864 B2, Filed Jul. 7. 2008)

- **Ranked as #1 in the worldwide ranking of inventors by number of graphene patent** filed according to the report of Nature Materials, 11, 2-5 (2012).

**DETAIL LIST UP IN CAREER**

 ◾ **HONORS & AWARDS**

- **2018 Highly Cited Researchers** **(Nov. 2018),** Clarivate Analytics

- **Research Achievement Award (July 2014),** Samsung Electronics, Development of new 2D materials for bendable mobile touch screen

 - **SAMSUNG Best Paper Award** **(Oct. 2009),** Samsung Electronics, Gold Award (1st rank in

materials division), Development of large-area graphene growth for electronic applications,

Samsung Journal(2009)

- **World Best Paper Award (Oct. 2009),** Samsung Electronics, Best paper in SAMSUNG ELECTRONICS of the year, Large-scale pattern growth of graphene films for stretchable transparent electrodes, Nature457 706 (2009)

- **World Best Paper Award** **(July 2008),** Samsung Electronics, Best paper in SAMSUNG ELECTRONICS of the year, Fermi level engineering of single-walled carbon nanotubes by AuCl3 doping, Journal of American Chemical Society, 130 12757 (2008):

- **SAMSUNG Best Paper Award (Dec. 2006),** Samsung Electronics, Silver Award (2nd rank in materials division), Development of nanoparticle array technology for NAND flash memory applications, Samsung Journal (2006)

- **Research Achievement Award for 20th Anniversary of SAMSUNG ELECTRONICS (Oct. 2006),** SAMSUNG ELECTRONICS, Technology transfer to Samsung Electronics, Development of selectively emitting keypad for mobile phone

- **Excellent Researcher (Jan. 2005)**, SAMSUNG ELECTRONICS, Best researcher of the

year

- **Knowledge Management Award (Dec. 2004)**, SAMSUNG ELECTRONICS, Best practice of knowledge management in project management

- **Research Achievement Award (Dec. 2004)**, SAMSUNG ELECTRONICS, Best achievement of project, Development of mass production technology of nickel nano particle for MLCC

- **Honorable Samsung Award (자랑스런 삼성인상) (Jan. 2004)**, Samsung Group, Best technology development achievement of Samsung Group, Development of nickel nano particle for MLCC

- **Customer Value Award (Oct. 2003)**, Technology transfer to Samsung Electromechanics, Synthesis technology of nickel nano particle for MLCC

**- Knowledge Management Award (Sept. 2003)**, Best practice of knowledge management

**- Breakthrough Award (July 2003)**, SAMSUNG ELECTRONICS, Best research achievement in SAMSUNG ELECTRONICS, Synthesis technology of nickel nanoparticle for MLCC

- **Breakthrough Award (Feb. 2003)**, SAMSUNG ELECTRONICS, Best research achievement in SAMSUNG ELECTRONICS, Coating technology of nickel nanoparticle for MLCC

- **Customer Value Award (Feb. 2002)**, SAMSUNG ELECTRONICS, Technology transfer to Samsung Electromechanics, Coating technology of nano particle for MLCC

- **Management Breakthrough Award (Jan. 2001)**, SAMSUNG ELECTRONICS, Best

practice of TRIZ

- **Customer Value Award (July 2000)**, SAMSUNG ELECTRONICS, Technology transfer to Samsung SDI, Dispersion technology of electrode materials of secondary battery

 ◾ **SPECIAL DETAILS IN CAREER (Technology transfer, Mass production etc.)**

 - **Technology transfer of graphene supercapacitor to Samsung Corning (Dec. 2012)**: Graphene-based nano electrode structure was developed to overcome the limit of energy density of conventional supercapacitor and transferred to Samsung Corning

 - **Establishment of Samsung Graphene Center (Jan. 2011)**: Samsung graphene center was established to find the opportunity of graphene-based new business creation in Samsung. I built the development strategy of graphene materials and device applications with Samsung branch companies (SAMSUNG ELECTRONICS, Samsung Electronics, Samsung SDI, Samsung Techwin, and Samsung Corning) and established Samsung Graphene Center to have a role of director.

 - **Technology transfer of CNT-based transparent electrode to Samsung LCD (Dec. 2010)**: CNT-based transparent electrode was developed to replace expensive ITO material. CNT dispersion and doping technology to improve sheet resistance of CNT electrode was developed for an application of LCD touch panel. CNT electrode was applied to pixel electrode of LCD and demonstrated on 25” LCD touch panel with Samsung LCD. My role was project manager

 - **Technology transfer of phosphor dispersion system to Samsung SDI (May, 2008)**: Dispersion of phosphor particle slurry and control of its rheological behavior for slurry injection process was developed for the PDP fabrication process. The resulting dispersion system was applied to mass production line of PDP, SDI. My role was project manager

 - **Technology transfer of selectively emitting keypad of mobile phone to Samsung Electronics (Dec. 2006)**: New keypad system of mobile phone was developed where button of the keypad emits at selective position with different service mode. For the development, phosphor material emitting at blue light LED was chosen and dispersed with selective light absorption materials to make a film to be used for selectively emitting keypad. The resulting technology was demonstrated in Galaxy mobile phone and transferred to Samsung Electronics. My role was project manager.

 - **Technology transfer of dispersion design methodology to Samsung Electromechanics (Dec. 2005)**: I developed diagnosis methodology of dispersion elements (particle, dispersant, binder, and solvent) and design method of optimal dispersion system from the each dispersion element. This dispersion design technology was transferred for the basic methodology for the development of MLCC of Samsung Electromechanics. My role was project manager.

 - **Technology transfer of nickel nano particle mass-production technology to Samsung Electromechanics (Dec, 2004):** After successful development of nickel nano particle in lab scale, scale-up development of nickel nano particle synthesis and coating technology was conducted and demonstrated in a pilot production facility of Samsung Electromechanics. My role was project manager.

 - **Technology transfer of nickel nano particle coating technology to Samsung Electromechanics (Feb. 2002):** Nickel nanoparticle for the electrode of MLCC needed the ceramic coating on the particle for the shrinkage matching between electrode (nickel) and dielectric (barium titanate) layers during sintering process. Large-scale solution coating technology of barium titanate as well as graphite on nickel particle was developed and transferred to Samsung Electromechanics. My role was project manager.

 **- Technology transfer of dispersion technology of electrode materials in Li ion battery to Samsung SDI (July 2000):** Stable dispersion of electrode materials in Li ion battery was needed to produce uniform and dense electrode layer for the high energy density of the battery. Pilot-scale dispersion technology of electrode material was developed and transferred to Samsung SDI. This activity was my individual activity for the support of Li ion battery business section, SDI.

* **RESEARCH EXPERIENCES**

- **Synthesis of new 2D materials and device application (Jan.2011~Present)**

2D materials in addition to graphene are also attracting materials due to their high fracture strain, semiconducting property, and insulating property for future device application. I studied large-area uniform growth of monolayer boron nitride (insulator) by the CVD method by suppressing the formation of impurity particles with surface treatment of copper substrate and demonstrated possibility to be applied as a substrate material of the graphene device. As the second step, the growth of boron nitride on nonmetallic substrate was studied for the easy application of the material to electronic application. Growth technology of boron nitride on nano carbon layer was successfully developed by using the nano carbon as a nucleation site.

Another 2D material, molybdenum disulfide (MoS2) was studied for finding the possibility as a channel material of thin film transistor. In this study, I made monolayer molybdenum disulfide sheet by mechanical exfoliation and my coworker fabricated the thin film transistor using the molybdenum disulfide to demonstrate the possibility of low power transistor application (**Nature Communications** 3 1011 (2012)). In the present, I am studying the new 2D materials that overcome the property limits of current 2D materials (graphene, boron nitride, and molybdenum disulfide) because the current 2D material have inferior electronic properties compared with their counter competing current materials (copper as a conductor, SiO2 as a insulator, Si as a semiconductor)

 • CVD growth of boron nitride

 • Mechanical exfoliation of molybdenum disulfide (MoS2)

 • Fabrication of MoS2 thin film transistor

 • Structure design of new 2D material

- **Synthesis of graphene and device application (Jan. 2007~Present)**

I developed world’s first growth technology of large-area monolayer graphene by CVD. This work was done together with coworkers (Prof. Yong Hee Lee, SKKU and Prof. Byung Hee Hong, SNU). Original growth idea was created by me and my researchers of SAMSUNG ELECTRONICS in 2007. During the synthesis of nickel nano particle for MLCC in 2003, ceramic coating on nickel nano particle was required for the shrinkage matching between electrode (nickel) and dielectric (barium titanate) layers during sintering process. At that time, we developed large-scale coating technology of thin graphite layer on nickel particle but did not know the importance of the result. In 2007, we realized that the thin graphite layer was a few layer graphene fomed on nickel surface and could establish growth strategy from the result in SAMSUNG ELECTRONICS and conducted growth experiment with the coworkers. We issued the world’s first original patent of graphene growth in 2007 at Samsung (Korean patent: Graphene sheet and process of preparing the same, 10-2009-0026568, Filed Sept. 10. 2007, US patent: Graphene sheet and process of preparing the same, US8,075,864 B2, Filed Jul. 7. 2008) and reported world’s first paper of large-area monolayer graphene growth on nickel substrate with the coworkers in 2009 (**Nature** 457 706 (2009)). Owing to pioneering research on grpahene growth and applications, I was ranked as #1 in the worldwide ranking of inventors by number of graphene patent filed according to the report of **Nature Materials**, 11, 2-5 (2012).

Table 1 shows the summarized list of material research activities and publications in my graphene research. I developed 2 kinds of graphene synthesis technology; CVD growth for large-area electronic applications and exfoliation method for graphene ink-based applications. In the case of CVD method, I developed CVD growth of monolayer graphene on nickel substrate where graphene should be transferred to device substrate by transfer process. As the second step, new growth concept was applied to develop transfer process-free growth method where self-assembled molecules were pyrolized and converted to graphene directly on device substrate. Regarding with exfoliation technology, one-step exfoliation method and defect-less exfoliation method were studied.

Doping technology was needed in order to improve electrical conductivity of graphene for the application to flexible transparent electrode. Various types of chemical structure were surveyed from the inventory of oxidant and reductant chemicals and could be listed according to their redox potentials. Relative difference of redox potential between dopants and graphene could control doping types (n-type or p-type) and carrier density by Fermi-level shift of graphene.

Graphene was grown on nickel or copper substrate in CVD method and should be transferred to device substrate. However the transfer process generates various types of defects such as tearing, folding, and polymer residuals. Thus clean and simple transfer process is needed. Simple one-step transfer process was developed by using polymer glue and demonstrated in 40” flexible touch panel film at Samsung Tech Fair in 2009.

New types of graphene hybrid interfaces; inorganic/grpahene and organic/graphene were also studied. Hexagonal ZnO (0001) nanowire grows epitaxially on grpahene (0001). From this hybrid structure, flexible nanogenerator could be fabricated. P3HT polymer assembles on graphene with face-to-face stacking due to the π-π interaction between π electrons in thiophene of P3HT and π electrons in benzene of graphene. This face-to-face stacking was demonstrated to improve electrical transport in OTFT structure.

 Table 1



Application of graphene to devices was studied in areas of electronic, display, energy, and environment. Table 2 shows summarized list of device research activities and publications. Large-area graphene grown by CVD process was applied to electronic, display, energy applications such as transistor, radio frequency device, flexible display, LED, flexible nanogenerator, and flexible photovoltaics. From various researches on device applications, I published prospective paper about future device application of large-area graphene (**Nature** 479 338 (2011)).

Flake-type graphene ink was studied for the application of energy and environment such as super capacitor and gas selection membrane. Well stacked grpahene film with CNT spacers produced the super capacitor having high volume as well as mass energy density. Another application of graphene flake was gas selection membrane. Interlayer gap between grpahene sheets was used as a gas separation channel in membrane structure and world’s highest hydrogen/carbon dioxide selectivity was obtained (**Science** 342 91 (2013)).

Table2



- **CNT dispersion and doping for electronic applications (Jan.2005~Dec.2006)**

I developed the dispersion and doping technology of CNT for the application of a flexible transparent electrode and a transistor in LCD, OLED, and TFT. First thing to do for the application of CNT to the devices was the preparation of CNT ink. Design of dispersant chemical structure was conducted to produce stable CNT ink solution. Structure of dispersant is composed of head group and tail group. The head group was designed to be strongly absorbed to CNT surface and the tail group was designed to be soluble and repulsive in the solvent. From this design strategy, Fluoro-based dispersant for aqueous system and thiophene-based dispersant for nonaqueous system were developed.

Doping technology was developed in order to improve sheet resistance of CNT transparent electrode for flexible display. Lewis acid/base concept used for the design of dispersant structure was firstly introduced to design dopant materials for CNT. Relative differences in redox potential between dopant materials and CNTs determined the types of dopant (p-type or n-type) and carrier concentration of CNT. In the case of p-dopant, 4 types of new chemical structure such as inorganic acid, halogen oxoanion, gold trichloride, and aromatic solvent were developed. For the development of n-type dopant, chemicals to donate electrons to CNT were studied and 2 kinds of new n-dopant structure such as neutral viologen and nicotineamide adenine dinucleotide (NADH) were developed. By using the developed new dispersants and dopants, electro-optical properties of CNT transparent electrodes were optimized to be world best value of 95 ohm/sq @ 90%.

 • Design of dispersant structure for CNT ink

 • Design of p-dopant structure for CNT doping

• Design of n-dopant structure for CNT doping

 • CNT-based flexible transparent electrode

- **Dispersion technology and its device application (Jan. 2005~Dec. 2006)**

Nano materials have important roles in many device applications. In order to effectively apply nano materials to device, the nano materials should be properly arrayed or coated in the device structure. For proper array or coating of nano materials in device structure, dispersion technology to produce stable ink solution should be seriously developed. In this study, I focused on the design of dispersant structure to optimize dispersion properties of nano materials and established the design methodology of dispersant chemical structure. Structure of dispersant is composed of head group and tail group. Head group was designed to strongly absorbed to particle surface by strong Lewis acid/base reaction. Tail group was designed to be hindered each other by miscibility and repulsive action in solvent. Using the developed design methodology of dispersant structure, various nano materials were applied to practical devices in Samsung branch companies; dielectric particles in binder for PDP and phosphor particles in binder for PDP, Quantum dot in epoxy for color filter of LCD, ZrO2 particle in Si-polymer for high refractive index encapsulation material of LED, and emitting particles for selective emitting keypad of cell phone.

 • Establishment of design methodology for dispersant structure

 • Dispersion of phosphor particle in binder for PDP

 • Dispersion of phosphor particle in binder for PDP

 • Dispersion of quantum dot in epoxy for color filter of LCD

 • Dispersion of ZrO2 in Si-polymer for high refractive index encapsulation for LED

 • Dispersion of emitting material for selective emitting key pad for cell phone

 - **Synthesis and coating of nickel nano particle for MLCC application (Dec. 1999~Dec. 2004)**

 80 nm of nickel nano particle was required for high capacitance and down sizing of multi layer ceramic capacitor (MLCC) where dielectric layer (barium titanate) and metal layer (nickel) staked. I successfully developed the synthesis technology of nickel nano particles by hydrazine solution method and scaled-up the method for pilot line production. Another technology required for nickel nano particle of MLCC is ceramic coating on nickel nano particle for the shrinkage matching between electrode (nickel) and dielectric (barium titinate) layers during sintering process. Large-scale solution coating method of barium titinate as well as graphite on nickel particle was developed and transferred to Samsung Electromechanics. My role was project manager. Owing to the successful commercial development of nickel nano particle, I got “Honorable Samsung Award” (Jan. 2004), biggest prize in Samsung Group. In the technological point of view, graphite coating on nickel particle, which was realized to be few layer graphene on nickel surface, was a seed technology for world’s first growth of large-area graphene on nickel substrate in 2007.

• Synthesis of 80 nickel nano particle by solution method

 • Coating of barium titanate on nickel particle

 • Coating of few layer graphene on nickel particle

 • Scale-up of synthesis process for the mass production line

 - **Synthesis of monodisperse ceramic particle (Mar. 1992~Aug.1998)**

 Monodisperse ceramic nano particles are required to make dense, uniform, and thus high quality ceramics through sintering process. Synthesis methods of mono disperse particle were studied for the structural ceramics and electro ceramics. For the structural ceramic particle (SiC and Si3N4), monodisperse precursor particles were prepared by sol-gel method and converted to monodisperse SiC, Si3N4, and a mixture of SiC and Si3N4 particles by pyrolysis and heat-treatment process. In the case of electoceramic particle (perovskite compositions), precursor gel particle was synthesized by alcohol-aqueous mixture solution method and converted to monodisperse perovskite particles by hydrothermal method. The demonstrated compositions were BaTiO3, SrTiO3, PbTiO3, PbZrO3, Pb(Z 0.5,Ti0.5)O3, and Ba(Zr0.5,Ti0.5)O3.

• Synthesis of monodisperse precursor particle by sol-gel method

 • Pyrolysis and heat-treatment to convert the precursor to SiC and Si3N4 particles

 • Synthesis of monodisperse precursor particle by alcohol-aqueous mixture method

 • Hydrthemal transformation to convert the precursor to perovskite particle

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **RECORDS of ACADEMIC RESEARCHES****◾ Summary**

|  |
| --- |
| Journal |
|  | Domestic | International |
|  | SCI | Non SCI | SCI | Non SCI |
|  | 1 | 3 | 152 | 0 |
| Total | 156 |
| NSC | **# of papers about nanomaterials and device applications: 156****# of papers about carbon-based (CNT, Graphene) materials: 66**◾ ***Chemical Society Reviews*** 2017, 46, 6276-6300. **(# of Citations: 55, Impact factor: 40.443)**◾ ***Science*** 2013, 342, 91-95. **(# of Citations: 1056, Impact factor: 41.845)**◾ ***Nature Nanotechnology*** 2013, 8, 311-312. **(# of Citations: 40, Impact factor: 31.538)**◾ ***Nature*** 2012, 490, 235-239. **(# of Citations: 363, Impact factor: 42.778)**◾ ***Nature Communications*** 2012, 3, 1011. **(# of Citations: 1386, Impact factor: 12.121)**◾ ***Nature*** 2011, 479, 338-344. **(# of Citations: 688, Impact factor: 42.778)**◾ ***Nature*** 2009, 457, 706-710. **(# of Citations: 10999, Impact factor: 42.778)** |

**◾ International Journal Paper (Corresponding authors are underlined)**156. K. H. Choi, J. Jeon, S. Oh, S. Chae, B. J. Jeong, S. O. Yoon, C. Woo, X. Dong, A. Ghulam, C. Lim, M. Seo, T. Y. Kim, Z. Liu, C. Wang, A. Junaid, J.-H, Lee, H. K. Yu, and **J.-Y. Choi**, Family of low dimensional materials with ternary elements Ta2NixSey: Growth strategy for Ta2NiSe5 and Ta2NiSe7, **Journal of Alloys and Compounds**, 867, 159054, (2021)155. K. H. Choi, S. Oh, S. Chae, B. J. Jeong, B. J. Kim, J. Jeon, S. H. Lee, S. O. Yoon, C. Woo, X. Dong, A. Ghulam, C. Lim, Z. Liu, C. Wang, A. Junaid, J.-H, Lee, H. K. Yu, and **J.-Y. Choi**, Transition metal thiophosphates Nb4P2S21: New kind of 2D materials for multi-functional sensors, **Journal of Alloys and Compounds**, 864, 158811, (2021)154. W.-G. Lee, D. Sung, J. Lee, Y. K. Chung, B. J. Kim, K. H. Choi, S. H. Lee, B. J. Jeong, **J.-Y. Choi**, and J. Huh, Tuning the electronic properties of highly anisotropic 2D dangling-bond-free sheets from 1D V2Se9 chain structures, **Nanotechnology**, 32, 9, (2020)153. S. J. Kim, **J. Y. Choi**, H. Moon, H. R. Choi, and J. C. Koo, Biomometic Hybrid Tactile Sensor with Ridged Structure That Mimics Human Fingerprints to Acquire Surface Texture Information, **Sensors and Materials**, 32, 3787, (2020)152. C. McKay, C. Park, J. Chang, M. Brackbill, **J.-Y. Choi**, J. H. Lee, and S. H. Kim. Systematic Review and Meta-analysis of Pharmacist-Leg Transitions of Care Services on the 30-Day All-Cause Readmission Rate of Patients with Congestive Heart Failure, **Clinical Drug Investigation**, 39, 703, (2019)151. I. J. Choi, B. J. Kim, S. H. Lee, B. J. Jeong, T. Nasir, Y. S. Cho, N. Kim, J.-H. Lee, H. K. Yu, and **J.-Y. Choi**, Fabrication of a room-temperature NO2 gas sensor using morphology controlled CVD-grown tellurium nanostructures, **Sensors and Actuators: B. Chemical**, 333, 128891, (2021)150. T. Nasir, B. J. Kim, M. Hassnain, S. H. Lee, B. J. Jeong, I. J. Choi, Y. Kim, H. K. Yu, and **J.-Y. Choi**, Plasticized Polystyrene by Addition of –Diene Based Molecules for Defect-Less CVD Graphene Transfer, **polymers**, 12, 1839, (2020)149. Y. Kim, S. H. Lee, S. Jeong, B. J. Kim, **J.-Y. Choi**, and H. K. Yu, Conversion of WO3 thin films into self-crosllinked nanorods for large-scale ultraviolet detection, **RSC Advances** 10, 14147, (2020)148. J. W. Lee, W.-Y. Im, S. Y. Song, **J.-Y. Choi**, and S. J. Kim, Analysis of early failure rate and its risk factor with 2157 total ankle replacements, **Scientific Reports**, 11, 1901, (2021)147. S. Chae, S. Oh, K. H. Choi, J. W. Lee, J. Jeon, Z. Liu, C. Wang, C. Woo, L. Shi, J. Kang, S. Y. Song, S. J. Kim, J. H. Lee, H. K. Yu, and **J.-Y. Choi**, Aqueous dispersion of 1D van der Waals Mo6S3I6 crystal using biocompatible tri-block copolymer, **Ceramics International**, 47, 11935, (2021)146. S. Chae, S. Oh, K. H. Choi, J. W. Lee, J. Jeon, Z. Liu, C. Wang, C. Lim, X. Dong, C. Woo, A. Ghulam, L. Shi, J. Kang, S. J. Kim, S. Y. Song, J. H. Lee, H. K. Yu and **J.-Y. Choi**, A study on the bio-applicability of aqueous-dispersed van der Waals 1-D material Nb2Se9 using poloxamer, **Scientific Reports**, 11, 176, (2021)145. K. H. Choi, S. Oh, S. Chae, B. J. Jeong, B. J. Kim, J. Jeon, S. H. Lee, S. O. Yoon, C .Woo, X. Dong, A. Ghulam, C. Lim, Z. Liu, C. Wang, A. Junaid, J.-H. Lee, H. K. Yu and **J.-Y. Choi**, Low ligand field strength ion (I-) mediated 1D inorganic material MoI3: synthesis and application to photo-detectors, **Journal of Alloys and Compounds**, 853, 157375 (2021)144. S. Chae, A. J. Siddiqa, S. Oh, B. J. Kim, K. H. Choi, H. K. Yu and **J.-Y. Choi**, Design of dispersant for highly concentrated one-dimensional Nb2Se9 inorganic molecular chains from bulk crystal, **Scientific Reports**, 9, 14579 (2019)143. W.-G. Lee, Y. K. Chung, J. Lee, B. J. Kim, S. Chae, B. J. Jeong, **J.-Y. Choi** and J. Huh, Edge Defect-Free Anisotropic Two-Dimensional Sheets with Nearly Direct Band Gaps from a True One-Dimensional van der Waals Nb2Se9 Material, **ACS Omega**, 5, 10800 (2020)142. S. Chae, S. Oh, K. H. Choi, J. Jeon, Z. Liu, C. Wang, C. Lim, X. Dong, C. Woo, G. Asghar, J. Chang, M. Nurunnabi, J. Kang, S. Y. Song, H. K. Yu and **J.-Y. Choi**, Aqueous Dispersion of One-dimensional van der Waals Materials Mo6S3I6 with the Charge Type of the Hydrophobic Dispersant Tail, **ACS Applied Bio Materials**, 3, 3992, (2020)141. S. Oh, K. H. Choi, S. Chae, B. J. Kim, B. J. Jeong, S. H. Lee, J. Jeon, Y. Kim, S. S. Nanda, L. Shi, D. K. Yi, J.-H. Lee, H. K. Yu and **J.-Y. Choi**, Large-area synthesis of van der Waals two-dimensional material Nb3I8 and its infrared detection applications, **Journal of Alloys and Compounds**, 831, 154877, (2020)140. J. Lee, B. J. Kim, Y. K. Chung, W.-G. Lee, I. J. Choi, S. Chae, S. Oh, J. M. Kim, **J.-Y. Choi** and J. Huh, Raman scattering of true 1D van der Waals Nb2Se9 nanowire, **Journal of Raman Spectroscopy**, 51, 1100, (2020)139. W. Choi, H.-C. S, J. M. Kim, J.-Y. Choi and W.-S. Yoon, Modeling and Applications of Electrochemical Impedance Spectroscopy (EIS) for Lithium-ion Batteries, **Journal of Electrochemcial Science and Technology**, 11, 1, (2020)138. T. Kim, W. Choi, H.-C. S, **J.-Y. Choi**, J. M. Kim, M.-S. Kim and W.-S. Yoon, Applications of voltammetry in Lithium Ion Battery Research, **Journal of Electrochemcial Science and Technology**, 11, 14, (2020)137. B. J. Kim, B. J. Jeong, S. Oh, S. Chae, K. H. Choi, T. Nasir, S. H. Lee, H. K. Lim, I. J. Choi and M.-K. Hong, H. K. Yu, J.-H. Lee, **J.-Y. Choi**, Thickness-Dependence Electrical Characterization of the One-Dimensional van der Waals TaSe3 Crystal, **Materials**, 12, 2462, (2019)136. W.-G. Lee, S. Chae, Y. K. Chung, W.-S. Yoon, **J.-Y. Choi**, J. Huh, Indirect-to-direct Band gap transition of One-dimensional V2Se9: Theoretical study with Dispersion Energy Correction, **ACS Omega**, 4, 18392, (2019)135. F. O.-T. Agyapong-Fordjour, S. Oh, J. Lee, S. Chae, K. H. Choi, S. H. Choi, S. Boandoh, W. Yang, J. Huh, K. K. Kim, **J.-Y. Choi**, One-dimensional Single-Chain Nb2Se9 as Efficient Electrocatalyst for Hydrogen evolution reaction, **ACS Applied Energy Materials**, 2, 5785, (2019)134. S. H. Kim, S. Oh, S. Chae, J. W. Lee, K. H. Choi, K. E. Lee, J. Chang, L. Shi, **J.-Y. Choi**, J. H. Lee, Exceptional Mechanical properties of Phase-Separation-Free Mo3Se3--Chain-Reinforced Hydrogel Prepared by Polymer Wrapping Process, **Nano Letters**, 19, 5717, (2019)133. S. Oh, S. Chae, K. H. Choi, B. J. Kim, S. H. Lee, C. Wang, Z. Liu, J. Jeon, J.-H. Lee, H. K. Yu, **J.-Y. Choi**, Large-scale synthesis of van der Waals 1-dimensional material Mo6S3I6 by using MoI2 precursor, **Journal of Alloys and Compounds**, 803, 499, (2019)132. A. D. Ugale, L. Chi, M.-K. Kim, S. Chae, **J.-Y. Choi**, J.-B. Yoo, Expanded graphene oxide fibers with high strength and increased elongation, **RSC advances**, 9, 4198, (2019)131. S. S. Nanda, B. J. Kim, K.-W. Kim, T. Nasir, J. Park, K. Yun, K. Hembram, G. C. Papaefthymiou, **J.-Y. Choi**, D. K. Yi, A new device concept for bacterial sensing by Raman spectroscopy and voltage-gated monolayer graphene, **Nanoscale**, 11, 8528, (2019)130. S. Chae, A. J. Siddiqa, S. Oh, B. J. Kim, K. H. Choi, H. K. Yu, **J.-Y. Choi**, Design of dispersant for the highly concentrated one-dimensional Nb2Se9 inorganic molecular chain from bulk crystal, **Scientific Reports**, 9, 1, (2019)129. Y. K. Chung, W.-G. Lee, S. Chae, **J.-Y. Choi**, J. Huh, Structural and electronic properties of Mo6S3I6 nanowires by newly proposed theoretical compositional ordering, **Scientific Reports**, 9, 1222, (2019)128. J. W. Lee, S. Chae, S. Oh, S. H. Kim, K. H. Choi, M. Meeseepong, J. Chang, N. Kim, Y. H. Kim, N.-E. Lee, J. H. Lee, **J.-Y. Choi**, Single-chain Atomic Crystal as Extracellular Matrix Mimicking Material with Exceptional Biocompatibility and Bioactivity, **Nano Letters**, 18, 7619, (2018)127. J. Lee, H. Shin, K. S. Choi, J. Lee, **J.-Y. Choi**, H. K. Yu, Carbon layer supported Ni catalyst for Sodium Borohydride (NaBH4) hydrogenation, **International Journal of Hydrogen Energy**, 44, 2943, (2019)126. B. J. Kim, B. J. Jeong, S. Oh, S. Chae, K. H. Choi, S. S. Nanda, T. Nasir, S. H. Lee, K. W. Kim, H. K. Lim, L. Chi, I. J. Choi, M. Hong, D. K. Yi, H. K. Yu, J. Lee, **J.-Y. Choi**, Structural and electrical properties of Nb3I8 layered crystal, **Physica Status Solidi Rapid Research Letters**, 13, 1800448, (2019)125. B. J. Kim, B. J. Jeong, S. Oh, S. Chae, K. H. Choi, T. Nasir, S. H. Lee, K.-W. Kim, H. K. Lim, I. J. Choi, L. Chi, S. Hyun, H. K. Yu, J. Lee, **J.-Y. Choi**, Mechanical exfoliation and characterization of one-dimensional Nb2Se9 atomic crystal, **RSC advances**, 8, 37724, (2018)124. K.-W. Kim, B. Kim, S. Lee, T. Nasir, H. Lim, I. Choi, B. Jeong, J. Lee, H. K. Yu, **J.-Y. Choi**, Growth of NbC thin film using CH4 as carbon source and reducing agent, **Coatings**, 8, 379, (2018)123. W. G. Lee, S. Chae, Y. K. Chung, S. Oh, **J.- Y. Choi**, J. Huh, New One-Dimensional Material Nb2Se9: Theoretical prediction of indirect to direct band gap transition due to dimensional reduction, **Physica Status Solidi Rapid Research Letters**, 13, 1800517, (2019)122. S.-Y. Lim, W. Jang, S. Yun, W.-S. Yoon, **J.-Y. Choi**, D. Whang, Amorphous Germanium Oxide Nanobubbles for Lithium-Ion Battery Anode, **Materials Research Bulletin**, 110, 24, (2019)121. T. Nasir, B. J. Kim, K.-W. Kim, S. Lee, H. Lim, D. K. Lee, B. Jeong, H. C. Kim, H. K. Yi, **J.-Y. Choi**, Design of Softened Polystyrene for Crack- and Contamination-Free Large-Area Graphene Transfer, **Nanoscale**, 10, 21865, (2018)120. S. Chae, A. J. Siddiqa, B. J. Kim, S. Oh, K. H. Choi, K. H. Lee, H. Y. Kim, H. K. Yu, **J.-Y. Choi**, Isolation of inorganic molecular chains from rod-like bulk V2Se9 crystal by liquid exfoliation, **RSC Advances**, 8, 35348, (2018)119. S. Chae, S. Oh, A. J. Siddiqa, K. H. Choi, W.-G. Lee, W.-S. Jang, J. S. Lee, Y.-M. Kim, J. Huh, S. M. Kim, **J.-Y. Choi**, Highly Concentrated Single-Chain Atomic Crystal LiMo3Se3 Solution Using Ion-Exchange Chromatography, **Chemical Communications**, 54, 12503, (2018)118. J. Lee, H. Shin, **J.-Y. Choi**, H. K. Yu, Suppressing Grain Growth on Cu Foil Using Graphene, **Coatings**, 8, 334, (2018)117. A. Lee, **J.-Y. Choi**, H. K. Yu, Mimicking of five human senses using nanostructured ZnO single material, **Nanotechnology**, 29, 475501, (2018)116. D. K. Lee, T. S. Kim, **J.-Y. Choi**, H. K. Yu, Recrystallized NaCl from thin film to nano-/microsized sacrificial crystal for metal nanostructures, **Crystal Growth & Design**, 18, 5295, (2018)115. K. Min, K. S. Choi, W. J. Jeon, D. K. Lee, S. Oh, J. Lee, **J.-Y. Choi**, H. K. Yu, Hierarchical Ag nanostructures on Sn-doped indium oxide nano-branches: super-hydrophobic surface for surface-enhanced Raman scattering, **RSC advances**, 8, 12927, (2018)114. K. Min, W. J. Jeon, Y. Kim, **J.-Y. Choi**, H. K. Yu, Spontaneous nano-gap formation in Ag film using NaCl buffer layer for Raman enhancement, **Nanotechnology**, 29, 105502, (2018)113. M. E. Bhosale, S. Chae, J. M. Kim, **J.-Y. Choi**, Organic small molecules and polymers as an electrode material for rechargeable lithium ion batteries, **Journal of Materials Chemistry A**, 6, 19885, (2018)112. B. J. Kim, T. Nasir, **J.-Y. Choi**, Direct Growth of Graphene at Low Temperature For Future Device Applications, **Journal of the Korean Ceramic Society**, 55, 203, (2018)111. B. J. Kim, B. Jeong, S. Oh, S. Chae, K. Choi, T. Nasir, S. Lee, K.-W. Kim, H. Lim, I. Choi, J.-Y. Moon, H. K. Yi, J. Lee, **J.-Y. Choi**, Exfoliation and Characterization of V2Se9 Atomic Crystals, **Nanomaterials**, 8, 737, (2018)110. S. Chae, A. J. Siddiqa, B. J. Kim, S. Oh, K. H. Choi, H. Y. Kim, K. H. Lee, H. K. Yu, **J.-Y. Choi**, Design of dispersant structure for the highly concentrated one-dimensional inorganic molecular chain from V2Se9 crystal, **Chemical Communications**, 54, 12190, (2018)109. S. Chae, A. Siddiqa, S. Oh, B. Kim, K. Choi, W.-S. Jang, Y.-M. Kim, H. K. Yu, **J.-Y. Choi**, Isolation of Nb2Se9 molecular chain from bulk one-dimensional crystal by liquid exfoliation, **Nanomaterials**, 8, 794, (2018)108. S. Oh, S. Chae, B. J. Kim, A. J. Siddiqa, K. H. Choi, W. S. Jang, K. H. Lee, H. Y. Kim, D. K. Lee, Y. M. Kim, H. K. Yu, **J.-Y. Choi**, Inorganic molecular chain Nb2Se9: Synthesize of bulk crystal and one-atom-thick level exfoliation, **Physica Status Solidi Rapid Research Letters**, 12, 1800451, (2018)107. S. Oh, S. Chae, B. J. Kim, K. H. Choi, W.-S. Jang, J. Jang, Y. Hussain, D. K. Lee, Y.-M. Kim, H. K. Yu, **J.-Y. Choi**, Synthesis of One-dimensional Atomic Crystal of Vanadium Selenide (V2Se9), **RSC advances**, 8, 33980, (2018)106. K.-W. Kim, B. J. Kim, S. H. Lee, T. Nasir, H.-K. Lim, I. J. Choi, B. J. Jeong, J. Lee, H. K. Yu, **J.-Y. Choi**, Triangular radial Nb2O5 nanorod growth on c-plane sapphire for ultra-violet detection, **RSC advances**, 8, 31066, (2018)105. Q. Van Le, **J.-Y. Choi**, S. Y. Kim, Recent advances in the application of two-dimensional materials as charge transport layers in organic and perovskite solar cells, **FlatChem**, 2, 54, (2017)104. A. Lee, K. S. Choi, J. Park, T. S. Kim, J. Lee, **J.-Y. Choi**, H. K. Yu, Graphene growth controlled by the position and number of layers (n = 0, 1, and more than 2) using Ni and MgO patterned ultra-flat Cu foil, **RSC Advances**, 7, 52187, (2017)103. B. J. Kim, N. K. Shrivastava, T Nasir, K. S. Choi, J. A. Lee, H. C. Kim, K. W. Kim, M. Devika, S. H. Lee, B. J. Jeong, H. K. Yu, **J. Y. Choi**, Poly-Trimethoxyphenylsilane for carrier-film of residual-free CVD-graphene transfer, **Physica Status Solidi Rapid Research Letters**, 11, 1, (2017)102.A. Lee, J. H. Park, K. S. Choi, J. A. Lee, I. H. Yoo, I. S. Cho, B. M. Ahn, H. T. Seo, **J. Y. Choi**, H. K.Yu, Position-Selective Metal Oxide Nano-Structures using Graphene Catalyst for Gas Sensors, **Carbon**, 125, 221, (2017)101. V. P. Pham, H. S. Jang, D. M. Whang, **J. Y. Choi**, Direct growth of graphene on rigid and flexible substrates: progress, applications, and challenges, **Chemical Society Reviews**, 47, 1, (2017)100.S. Boandoh, S. H. Choi, J. H. Park, S. Y. Park, S. H. Bang, M. S. Jeong, J. S. Lee, H. J. Kim, W. C. Yang, **J. Y. Choi**, S. M. Kim, K. K. Kim, A Novel and Facile Route to Synthesize Atomic-Layered MoS2 Film for Large-Area Electronics, **Small**, 13, (2017)99. [D. K. Lee](https://www.nature.com/articles/s41598-017-09603-5#auth-1), S. J.Kim, S. Oh, **J. Y. Choi**, J. L. Lee, H K Yu, Water-Soluble epitaxial NaCl thin Film for Fabricarion of Rlexible Devices, **Scientific Report,** 7, 8716, (2017) 98.S. Y. Lim, S.D. Chae, S. H.Jung, Y.H. Hyeon, W.S. Jang, W. S. Yoon, **J. Y. Choi**, D. M. Whang, Loose-Fit Graphitic Encapsulation of Silicon Nanowire for One-Dimensional Si Anode Design, **Journal of Material Science and Technology,** Published Online (2017) 97. S. H. Kim, H. A. Park W. B. Im, J. Heo, **J. Y. Choi**, W. J. Chung, A low sintering temperature glass based on SiO2–P2O5–ZnO–B2O3–R2O system for white LEDs with high color rendering index, **Journal of American Ceramic Society**, 1, 7, (2017)96**.** M. M.[Menamparambath](https://www.ncbi.nlm.nih.gov/pubmed/?term=Menamparambath%20MM%5BAuthor%5D&cauthor=true&cauthor_uid=27758974) , K [Yang](https://www.ncbi.nlm.nih.gov/pubmed/?term=Yang%20K%5BAuthor%5D&cauthor=true&cauthor_uid=27758974),H. H. [Kim](https://www.ncbi.nlm.nih.gov/pubmed/?term=Kim%20HH%5BAuthor%5D&cauthor=true&cauthor_uid=27758974) , O. S. [Bae](https://www.ncbi.nlm.nih.gov/pubmed/?term=Bae%20OS%5BAuthor%5D&cauthor=true&cauthor_uid=27758974), M. S. [Jeong](https://www.ncbi.nlm.nih.gov/pubmed/?term=Jeong%20MS%5BAuthor%5D&cauthor=true&cauthor_uid=27758974), **J. Y.** [**Choi**](https://www.ncbi.nlm.nih.gov/pubmed/?term=Choi%20JY%5BAuthor%5D&cauthor=true&cauthor_uid=27758974), S. [Baik](https://www.ncbi.nlm.nih.gov/pubmed/?term=Baik%20S%5BAuthor%5D&cauthor=true&cauthor_uid=27758974), Reduced haze of transparent conductive films by smaller diameter silver nanowires, **Nanotechnology**, 27, 465706 (2016)95. [Jae-Hyun Lee](http://aip.scitation.org/author/Lee%2C%2BJae-Hyun), [Min-Sung Kim](http://aip.scitation.org/author/Kim%2C%2BMin-Sung), [Jae-Young Lim](http://aip.scitation.org/author/Lim%2C%2BJae-Young), [Su-Ho Jung](http://aip.scitation.org/author/Jung%2C%2BSu-Ho), [Seog-Gyun Kang](http://aip.scitation.org/author/Kang%2C%2BSeog-Gyun)*,* [Hyeon-Jin Shin](http://aip.scitation.org/author/Shin%2C%2BHyeon-Jin)*,* [**Jae-Young Choi**](http://aip.scitation.org/author/Choi%2C%2BJae-Young)*,* [Sung-Woo Hwang](http://aip.scitation.org/author/Hwang%2C%2BSung-Woo) [D. M. Whang](http://aip.scitation.org/author/Whang%2C%2BDongmok), CMOS-compatible catalytic growth of graphene on a silicon dioxide substrate, **Applied Physics Letters**, 109, 53102 (2016)94. Mini Mol Menamparambath, C. Muhammed Ajmal, Kwang Hee Kim, Daejin Yang, Jongwook Roh, Hyeon Cheol Park, Chan Kwak, **Jae-Young Choi**, Seunghyun Baik, Silver nanowires decorated with silver nanoparticles for low-haze flexible transparent conductive films, **Scientific report**, 5, 16371 (2015)93. K. H. Lee, H.-J. Shin, B. Kumar, H. S. Kim, J. Lee, S.-H. Kim, I.-Y. Lee, H. S. Lee, G.-H. Kim, J.-B. Yoo, **J.-Y. Choi**, S.-W. Kim, Nanocrystalline-graphene-tailored hexagonal boron nitride thin film, **Angew. Chem**. 53, 11493 (2014)92. Y. Yoon, K. Lee, S. Kwon, S. Seo, H. Yoo, S. Kim, Y. Shin, Y. Park, D. Kim, **J.-Y. Choi**, H. Lee, Vertical alignments of graphene sheets spatially and densely piled for fast ion diffusion in compact supercapacitor, **ACS Nano** 8, 4580 (2014)91. I. H. Son, H. J. Song, S. Kwon, A. Bachmatiuk, S. J. Lee, A. Benayad, J. H. Park, **J.-Y. Choi**, H. Chang, M. H. Rummeli, CO2 enhanced chemical vapor deposition growth of gew-layer graphene over NiOx, **ACS Nano** 8, 9224 (2014)90. H. W. Kim, H. W. Yoon, S.-M. Yoon, B. M. Yoo, B. K. Ahn, Y. H. Cho, H. J. Shin, H. Yang, U. Pain, S. Kwon, **J.-Y. Choi**, H. B. Park, Selective Gas Transport Through Few-Layered Grpahene and Graphene Oxide Membranes, **Science**, 342, 91 (2013)89**. J.-Y. Choi**, Graphene transfer: A stamp for all substrates, **Nature Nanotech** 8, 311 (2013)88. N. Jung, S. Kwon, D. Lee, D.-M. Yoon, Y. M. Park, A. Benayad, **J.-Y. Choi**, J. S. Park, Synthesis of chemically bonded graphene/carbon nanotube composites and their application in large volumetric capacitance, **Advanced Materials** 25, 6845 (2013)87. H.-J. Shin, S.-M. Yoon, W. M. Choi, S. Park, D. Lee, I. Y. Song, Y. S. Woo, **J.-Y. Choi**, Influence of Cu crystallographic orientation on electron transport in graphene, **Applied Physics Letters** 102, 163102 (2013)86. M. Wang, S. K. Jang, W.-J. Jang, M. Kim, S.-Y. Park, S.-W. Kim, S.-J. Kahng, **J.-Y. Choi**, R. S. Ruoff, Y. J. Song, S. Lee, A platform for large-scale graphene electronics-CVD growth of single-layer graphene on CVD-grown hexagonal boron nitride, **Adv. Mater**. 25, 2746 (2013)85. J. H. Kee, G. K. W. Koon, D. W. Shin, V. E. Fedorov, **J.-Y. Choi**, J.-B. Yoo, B. Ozyilmaz, “Property control of graphene by employing the “semi-ionic” liquid fluorination”, **Adv. Func. Mater.** 23, 3329 (2013)84. D. H. Kim, H. S. Lee, H.-J. Shin, Y.-S. Bae, K.-H. Lee, S.-W. Kim, D. Choi, **J.-Y. Choi**, Graphene surface induced specific self-assembly of poly(3-hexylthiophene) for nanohybrid optoelectronics: from first-principles calculation to experimental characterizations, **Soft Matter** 9, 5355 (2013)83. S.-M. Yoon, W. M. Choi, H. Baik, H.-J. Shin, I. Song, M.-S. Kwon, J. J. Bae, H. Kim, Y. H. Lee, **J.-Y. Choi**, Synthesis of multilayer graphene balls by carbon segregation from nickel nanoparticles, **ACS Nano**, 6, 6803-6811 (2012)82. D. L. Duong, G. H. Han, S. M. Lee, F. Gunes, E. S. Kim, S. T. Kim, H. Kim, Q. H. Ta, K. P. So, S. J. Yoon, S. J. Chae, Y. W. Jo, M. H. Park, S. H. Chae, S. C. Lim, **J.-Y. Choi** and Y. H. Lee**\***, Probing graphene grain boundaries with optical microscope**, Nature**, 490, 235 (2012)81. S. Kim, A. Konar, W.-S. Hwang, J. H. Lee, J. Lee, J. Yang, C. Jung, H. Kim, J.-B. Yoo, **J.-Y. Choi**, Y. W. Jin, S. Y. Lee, D. Jena, W. Choi, and K. Kim, High-mobility, low-power thin-film transistors based on multilayer MoS2 crystals”, **Nature Communications**, 3, 1011 (2012)80. K.-S. Shin, H. Jo, H.-J. Shin, W. M. Choi, **J.-Y. Choi**, S.-W. Kim, High quality graphene-semiconducting oxide heterostructure for inverted organic photovoltaics, **J. Mater. Chem.**, 22 13032 (2012)79. S. Hong, E. S. Kim, W. Kim, S.-J. Jeon, S. C. Lim, K. H. Kim, H.-J. Lee, S. Hyun, D. Kim, **J.-Y. Choi**, Y. H. Lee and S. Baik, A hybridized graphene carrier highway for enhanced thermoelectric power generation, **Physical Chemistry Chemical Physics**, 14, 13527 (2012)78. D. H. Kim, H.-J. Shin, H. S. Lee, J. Lee, B.-L. Lee, W. H. Lee, J.-H. Lee, K. Cho, W.-J. Kim, S. Y. Lee, **J.-Y. Choi**, J. M. Kim, Design of polymer-carbon nanohybrid junction by interface modeling for efficient printed transistors, **ACS NANO**, 6, 662-670 (2012) |

77. K. Y. Lee, B. Kumar, H.-K. Park, W. M. Choi, **J.-Y. Choi**, S.-W. Kim, Growth of high quality ZnO nanowires on graphene, **J. Nanosci. Nanotechnol.**, 12, 1551 (2012)

76. K. H. Lee, H.-J. Shin*,* J. Lee, I.-y. Lee, G.-H. Kim, **J.-Y. Choi**, S.-W. Kim, Large-scale synthesis of high-quality hexagonal boron nitride nanosheets for large-area graphene electronics, **Nano Lett.**, 12, 714 (2012)

75. E. S. Kim, H.-J. Shin, S.-M. Yoon, G. H. Han, S. J. Chae, J. J. Bae, F. Gunes, **J.-Y. Choi**, Y. H. Lee, Low-temperature graphene growth using epochal catalyst of PdCo alloy, **Appl. Phys. Lett.**, 99, 223102-1 (2011)

74. K. Kim, **J.-Y. Choi**, T. Kim, S.-H. Cho, H. J. Chung, A role for graphene in silicon-based semiconductor devices**, Nature**, 479, 338 (2011)

73. S. Choo, K. Lee, Y. Jo, S.-M. Yoon, **J.-Y. Choi**, J.-Y. Kim, J.-H. Park, K.-J. Lee, J.-H. Lee, M. H. Jung, Interface effect of magnetic properties in Ni aanoparticles with a hcp core and fcc shell structure, **J. Nanosci. Nanotechnol.**,11, 6126 (2011)

72. G. H. Han, H.-J. Shin, E. S. Kim, S. J. Chae, **J.-Y. Choi**, and Y. H. Lee, Poly(ethylene co-vinyl acetate)-assisted one-step transfer of ultra-large graphene, **Nano** 6, 59 (2011)

71. F. Gunes, G. H. Han, H.-J. Shin, S. Y. Lee, M. Jin, D. L. Duong, S. J. Chae, E. S. Kim, E. Yao, A. Benayad, **J.-Y. Choi**, Y. H. Lee, UV-Light-assisted oxidative sp3 hybridization of graphene, **Nano** 6, 409-418 (2011)

70. D. W. Jeon, W. M. Choi, H.-J. Shin, S.-M. Yoon, **J.-Y. Choi**, L.-W. Jang, I.-H. Lee, Nanopillar InGaN/GaN light emitting diodes integrated with homogeneous multilayer graphene electrodes, **J. Mater. Chem.**, 21, 17688 (2011)

69. G. H. Han, F. Gunes, J. J. Bae, E. S. Kim, S. J. Chae, H.-J. Shin, **J.-Y. Choi**, D. Pribat, and Y. H. Lee, Influence of copper morphology in forming nucleation seeds for graphene growth”, **Nano Lett.**, 11, 4144 (2011)

68. H.-J. Shin, W. M. Choi, S.-M. Yoon, G. H. Han, Y. S. Woo, E.S. Kim, S. J. Chae, X.-S. Li, A. Benayad, D. D. Loc, F. Gunes, Y. H. Lee, **J.-Y. Choi**,Transfer-free growth of graphene by self-assembled monolayer, **Adv. Mater**. 23, 4392 (2011)

67. G. Hong, M. Zhou, R. Zhang, S. Hou, W. Choi, Y. S. Woo, **J.-Y. Choi**, Z. Liu, J. Zhang, Separation of metallic and semiconducting single-walled carbon nanotube arrays by “scotch tape”, **Angew. Chem.** 123, 6951 (2011)

66. D. H. Choi, K. Y. Lee, M. J. Jin, S. G. Ihn, S. Y. Yun, X. Bulliard, W. Choi, S. Y. Lee, S.-W. Kim, **J. Y. Choi,** J. M. Kim, Z. L. Wang, Control of naturally coupled piezoelectric and photovoltaic properties for multi-type energy scavengers, **Energy Environ. Sci.**, 4, 4607 (2011)

65. W. M. Choi, K.-S. Shin, H. S. Lee, D. Choi, K. Kim, H.-J. Shin, S.-M. Yoon, **J.-Y. Choi**, S.-W. Kim, Selective growth of ZnO nanorods on SiO2/Si substrates using a graphene buffer layer, **Nano Res.**,  4, 440 (2011)

64. S.-G. Ihn, K.-S. Shin, M-.J. Jin, X. Bulliard, S. Yun, Y. S. Choi, Y. Kim, J.-H. Park, M. Sim, M. Kim, K. Cho, T. S. Kim, D. Choi, **J.-Y. Choi**, W. Choi, S.-W. Kim, ITO-free inverted polymer solar cells using a GZO cathode modified by ZnO”, **Sol. Energy Mater. Sol. Cells**, 95, 1610 (2011).

63. S.-M. Yoon, U. J. Kim, A. Benayad, I. H. Lee, H. Son, H.-J. Shin, W. M. choi, Y. H. Lee, Y. W. Jin., E.-H. Lee, S. Y. Lee, **J.-Y. Choi**, J. M. Kim, Thermal conversion of electronic and electrical properties of AuCl3 doped single walled carbon nanotubes, **ACS NANO**, 5, 1353 (2011)

62. S.-M Kim, Y. W. Jo, K. K. Kim, D. L. Duong, H.-J. Shin, J. H. Han, **J.-Y. Choi**, J. Kong, and Y. H. Lee, Transparent organic p-dopant in carbon nanotubes: bis(trifluoromethanesulfonyl)imide, **ACS NANO**, 4, 6998 (2010)

61. X. Yu, J. Zhang, W. Choi, **J.-Y. Choi**, J. M. Kim, L. Gan, Z. Liu, Cap formation engineering: from opened C60 to single-walled carbon nanotubes, **Nano Letters** 10, 3343 (2010)

60. D. Choi, K.-Y. Lee, K. H. Lee, E. S. Kim, T. S. Kim, S. Y. Lee, S.-W. Kim, **J.-Y. Choi**, J. M. Kim, Piezoelectric touch-sensible flexible hybrid energy harvesting nanoarchitecture, **Nanotechnology**, 21, 405503 (2010)

59. X. Bulliard, S. Yun, S.-G. Ihn, W. S. Choi, Y. Kim, D. Choi, **J.-Y. Choi**, W. Choi, Density control of ZnO nanorod arrays on mixed self-assembled monolayers, **Crystal Growth & Design**, 10, 4697 (2010)

58. H.-J. Shin, W. M. Choi, D. Choi, G. Hee. Han, S.-M. Yoon, H.-K. Park, S.-W. Kim, Y. W. Jin, S. Y. Lee, J. M. Kim, **J.-Y. Choi**, Y. H. Lee, Control of the electronic structure of graphene by various dopants and their effects on a nanogenerator, **Journal of American Chemical Society**, 132 15603 (2010)

57. F. Gunes, H.-J. Shin, C. Biswas, G. H. Han, E. S. Kim, S. J. Chae, **J.-Y. Choi**, Y. H. Lee, Layer-by-layer doping of few-layer graphene film”, **ACS NANO**, 4, 4595 (2010)

56. K. K. Kim, S.-M. Yoon, H. K. Park, H.-J. Shin, S. M. Kim, J. J. Bae, Y. Cui, J. M. Kim, **J.-Y. Choi**, Y. H. Lee, Doping strategy of carbon nanotubes with redox chemistry, **New Journal of Chemistry**, 34, 2183 (2010)

55. I. H. Lee, U. J. Kim, H. Son, S.-M. Yoon, F. Yao, W.J. Yoo, D.D. Joc, **J.-Y. Choi**, J.M. Kim, E.H. Lee, and Y. H. Lee, Hygroscopic effects on AuCl3-doped carbon nanotubes, **Journal of Physical Chemistry C**, 114, 11618 (2010)

54. D. Choi, M.-Y. Choi, W. M. Choi, H.-J. Shin, J.-S. Seo, J. Park, S.-M. Yoon, S.-W. Kim, **J.-Y. Choi**, S. Y. Lee, and J. M. Kim, Fully rollable transparent nanogenerators based on graphene electrodes, **Advanced Materials**, 22, 2187 (2010)

53. S. C. Jun, S. Moon, W. Kim, J. H. Choi, J. Y. Kang, J. Shin, I. Song, **J.-Y. Choi**, S. Lee, J. M. Kim, X.M.H. Huang, Nonlinear characteristics in radio freqeuncy nanoelectromechanical resonators, **New Journal of Physics**, 12, 043023 (2010)

52. W. K. Kim, Y. M. Jung, J. H. Cho, J. Y. Kang, J. Y. Oh, H. Kang, H. J. Lee, J. H. Kim, S. Lee, H. J. Shin, **J. Y. Choi**, S. Y. Lee, Y. C. Kim, I. T. Han, J. M. Kim, J. G. Yook, S. Baik, S. C. Jun, Radio-frequency characteristics of graphene oxide, **Applied Physics Letters**, 97, 193103 (2010)

51. J. H. Lee, D. W. Shin, V. G. Makotchenck, A. S. Nazarov, V. E. Fedorev, J. H. Yoo, S. M. Yu, **J.-Y. Choi**, J. M. Kim, and J.-B. Yoo, The superior dispersion of easily soluble graphite, **Small** 6, 58 (2010)

50. D. Choi, M.-Y Choi, H.-J. Shin, S.-M. Yoon, J. Seo, **J.-Y. Choi**, S. Y. Lee, J. M. Kim, S.-W. Kim, Nanoscale networked single-walled carbon-nanotube electrodes for transparent flexible nanogenerators, **Journal of Physical Chemistry C**, 114, 1379 (2010)

49. S. J. Kang, Y. Song, Y. Yi, W. M. Choi, S.-M. Yoon, **J.-Y. Choi**, Work function engineering of carbon nanotube transparent conductive films, **Carbon**, 48, 520 (2010)

48.G. Hong, B. Zhang, B. Peng, J. Zhang, W. M. Choi, **J.-Y. Choi**, J. M. Kim,Z. Liu, Direct growth of semiconducting single-walled carbon nanotube array, **Journal of American Chemical Society,** 131, 14642 (2009)

47. S. C. Jun, J. H. Cho, W. K. Kim, Y. M. Jung, S. Hwang, S. Shin, J. Y. Kang, J. Shin, I. Song**, J.-Y. Choi**, S. Y. Lee, and J. M. Kim, Resonance properties of 3C-SiC nanoelectromechanical resonator in

Room-Temperature Magnetomotive Transduction, **IEEE Electron Device Letters**, 30 1042 (2009)

46. Y. G. Yao, X. C. Dai, C. Q. Feng, J. Zhang, X. L. Liang, L. Ding, W. M. Choi, J. M. Kim**, J.-Y. Choi**, Z. F. Liu, Crankling ultralong carbon nanotubes into serpentines via landing-controlled process, **Advanced Materials,** 21, 4185 (2009)

45. A. Benayad, H.-J. Shin, H. K. Park, S.-M. Yoon, K. K. Kim, M. U. Jin, H.-K. Jeong, J.-C. Lee, **J.-Y. Choi**, Y. H. Lee, Controlling work function of reduced graphite oxide with Au-ion concentration”, **Chemical Physics Letters,** 475, 91 (2009)

44. J. H. Lee, D. W. Shin, V. G. Makotchenko, A. S. Nazarov, V. E. Fedorov, Y. H. Kim, **J. Y. Choi**, J. M. Kim, and J.-B. Yoo, One step exfoliation synthesis of water soluble graphite and transparent conducnting graphene sheet, **Advanced Materials,** 21, 4383 (2009)

43. H.-J. Shin, K. K. Kim, S.-M. Yoon, A. Benayad, H. K. Park, M. H. Jim, H.-K. Jeong, J. M. Kim, **J.-Y. Choi**, Y. H. Lee, Efficient reduction of graphite oxide by sodium borohydride and its effect on electrical conductance, **Advanced Functional Materials,** 19, 1987 (2009)

42. B. R. Kang, W. J. Yu, K. K. Kim, H. K. Park, S. M. Kim, Y. J. Park, G. Kim, H.-J. Shin, U. J. Kim, E. H. Lee, **J.-Y. Choi**, Y. H. Lee, Restorable type conversion of carbon nanotube transistor using pyrolytically controlled antioxidizing photosynthesis coenzyme, **Advanced Functional Materials,** 19, 2553 (2009)

41. B. Zhang, G. Hong, B. Peng, J. Zhang, W. M. Choi, J. M. Kim, **J.-Y. Choi**, Z. Liu, Grow single-walled carbon nanotubes cross-bar in one batch, **Journal of Physical Chemistry C,** 113, 5341 (2009)

40. S. J. Chae, F Gunes, K. K. Kim, E. S. Kim, G. H. Han, S. M. Kim, H.-J. Shin, S.-M. Yoon, **J.-Y. Choi**, M. H. Park, C. W. Yang, D. Pribat, Y. H. Lee, Synthesis of large-area graphene layers on poly-nickel substrate by chemical vapor deposition: wrinkle formation**, Advanced Materials,** 21, 2328 (2009)

39. S.-D. Lee, Y.-S. Kim, M.-S. Yi, **J.-Y. Choi**, S.-W. Kim, Morphology control and electroluminescence of ZnO nanorod/GaN heterojunctions prepared using aqueous solution, **Journal of Physical Chemistry C,** 113, 8954 (2009)

38. M.-Y. Choi, D. Choi, M.-J. Jin, I. Kim, S.-Y. Kim, **J.-Y. Choi**, S. Y. Lee, J. M. Kim, S.-W. Kim, Mechanically-powered transparent flexible charge generating nanodevices with piezoelectric ZnO nanorods, **Advanced Materials,** 21, 2185 (2009).

37. K. S. Kim, Y. Zhao, H. Jang, S. Y. Lee, J. M. Kim, K. S. Kim, J.-H. Ahn, P. Kim, **J.-Y. Choi**, B. H. Hong, Large-scale pattern growth of graphene films for stretchable transparent electrodes, **Nature** 457, 706 (2009)

36. S. M. Kim, J. H. Jang, K. K. Kim, H. K. Park, J. J. Bae, W. J. Yu, I. H. Lee, G. Kim, D. D. Loc, U. J. Kim, E.-H. Lee, H.-J. Shin, **J.-Y. Choi**, Y. H. Lee,Reduction-controlled viologen in bisolvent as an environmentally stable n-type dopant for carbon nanotubes, **Journal of American Chemical Society**, 131 327 (2009)

35. W. J. Yu, S. Y. Jeong, K. K. Kim, B. R. Kang, D. J. Bae, M. Lee, S. Hong, S. P. Gaunkar, D. Pribat, D. Perello, M. Yun, **J.-Y. Choi**, Y. H. Lee, Bias-induced doping engineering with ionic adsorbates on single-walled carbon nanotube thin film transistors, **New Journal of Physics** 10, 113013 (2008)

34. J.-H. Lee, S.-M. Yoon, K. K. Kim, I.-S. Cha, Y. J. Park, **J.-Y. Choi**, Y. H. Lee, and U. Paik, Exfoliation of single-walled carbon nanotubes induced by the structural effect of perylene derivatives and their optoelectronic properties, **Journal of Physical Chemistry C,** 112, 15267 (2008)

33. S. Y. Jeong, S. C. Lim, D. J. Bae, Y. H. Lee, H.-J. Shin, S.-M. Yoon, **J.-Y. Choi**, O. H. Cha, M. S. Jeong, D. Perello, M. Yun, Photocurrent of CdSe nanocrystals on singlewalled carbon nanotube-field effect transistor, **Applied Physics Letters,** 92, 243103 (2008)

32. K. K. Kim,J. J. Bae, H. K. Park, S. M. Kim, H.-Z. Geng, K. A. Park, H.-J. Shin, S.-M. Yoon, A. Benayad, **J.-Y. Choi**, Y. H. Lee, Fermi level engineering of single-walled carbon nanotubes by AuCl3 doping, **Journal of American Chemical Society**, 130, 12757 (2008)

31. H.-J. Shin, S. M. Kim, S.-M. Yoon, A. Benayad, K. K. Kim, S. J. Kim, H. K. Park, **J.-Y. Choi**, and Y. H. Lee, Tailoring electronic structures of carbon nanotubes by solvent with electron-donating and -withdrawing groups, **Journal of American Chemical Society**, 130, 2063 (2008)

30. S.-M. Yoon, S. J. Kim, H.-J. Shin, A. Benayad, S. J. Choi, K. K. Kim, S. M. Kim, Y. J. Park, G. Kim, **J.-Y. Choi**, and Y. H. Lee, Selective oxidation on metallic carbon nanotubes by halogen oxoanions, **Journal of American Chemical Society**, 130, 2610 (2008)

29. H.-Z. Geng, K. K. Kim, C. Song, N. T. Xuyen, S. M. Kim, K. A. Park, D. S. Lee, K. H. An, Y. S. Lee, Y. Chang, Y. J. Lee, **J.-Y. Choi**, A. Benayad, and Y. H. Lee, Doping and dedoping of carbon nanotube transparent conducting films by dispersant and chemical treatment, **Journal of Materials Chemistry**, 18 1261 (2008)

28. S. Lee, H.-J. Shin, S.-M. Yoon, D. K. Yi, **J.-Y. Choi**, U. Paik, Refractive index engineering of transparent ZrO2/polydimethylsiloxane nanocomposite, **Journal of Materials Chemistry**, 18, 1751 (2008)

27. S. Lee, S.-M. Yoon, H.-J. Shin, W.-J. Joo, D. K. Yi, **J.-Y. Choi**, C. A Amarnath, U. Paik, Hierarchical organization of Au nanoparticles in a poly(vinyl carbazole) matrix for hybrid electronic devices, **Nanotechnology**, 19, 75606 (2008)

26. M. H. Kim, **J.-Y. Choi**, H. K. Choi, S.-M. Yoon, O. O. Park, D. K. Yi, S. J. Choi, J.-J. Shin, Carbon nanotube network-structuring using two-dimensional colloidal crystal templates, **Advanced Materials**, 20, 457 (2008)

25. K. K. Kim, S.-M. Yoon, **J.-Y. Choi**, J. Lee, B.-K. Kim, J. M. Kim, J.-H. Lee, U. Paik, M. H. Park, C. W. Yang, K. H. An, Y. Chung, Y. H. Lee, Design of Dispersants for the Dispersion of Carbon Nanotubes in an organic solvent, **Advanced Functional Materials**, 17, 1775 (2007)

24. S. J. Kim, Y. J. Park, E. J. Ra, K. K. Kim, K. H. An, Y. H. Lee, **J.-Y. Choi**, C. H. Park, S. K. Doo, M. H. Park, C. W. Yang, Defect-induced loading of Pt nanoparticles on carbon nanotubes, **Applied Physics Letters** 90, 1 (2007)

23. S. J. Choi, D. K. Yi, **J.-Y. Choi**, J.-B. Park, I.-Y. Song, E. Jang, J. I. Lee, M. An, J.-D. Hong, S.-M. Yoon, H.-J. Shin, Spatial control of quantum sized nanocrystal arrays onto silicon wafers, **Journal of Nanoscience and Nanotechnology**, 7, 4285 (2007)

22. D.-I. Lee, S. M. Lee, E. S. Lee, **J.-Y. Choi**, J.-Y. Bae, Effect of TRITONTM X-based dispersants bearing a carboxylic terminal group on rheological properties of ABM/ethyl cellulose/terpineol paste", **Journal of Applied Polymer Science**, 105, 2012 (2007)

21. D.-I. Lee, **J.-Y. Choi**, E. S. Lee, C.-S. Ha, M. Han, J.Y. Bae, Synthesis and characterization of TRITONTM X-based surfactants with carboxylic or amino groups in the oxyethylene chain End, **Journal of Applied Polymer Science**, 104, 162 (2007)

20. S. Lee, S.-M. Yoon, **J.-Y. Choi**, U. Paik, A new design strategy for dispersion stabilization of Ni particles based on the surface acid and base properties of Ni particles, **Journal of Colloid Interface Science**, 312, 265 (2007)

19. S. Lee, K.-H. Hyun, U. Paik, S.-M. Yoon, E. Lee, and **J.-Y. Choi**, Luminescent properties of BaMgAl10O17:Eu2+ phosphor layer prepared with phosphste ester, **Journal of Materials Research**, 22, 3309 (2007)

18. I.-S. Cha, J.-H. Lee, U. Paik, S.-M. Yoon, E. Lee, and **J.-Y. Choi**, Luminance efficiency of a (La, Tb, Ce)PO4:Eu phosphor layer prepared with binary surface active organic molecules, **Solid State Phenomena** 443, 124 (2007)

17. K.-M. Kim, J.-H. Lee, S.-M. Yoon, H.-C. Lee, Y.-K. Lee, **J.-Y. Choi**, Preparation of mono-disperse Ni powders via the reduction of hydrazine complexes: the effect of source materials and impurities, **Journal of Electroceramics**, 17, 339 (2007)

16. J.-H. Lee, U. Paik, **J.-Y. Choi**, K. K. Kim, S.-M. Yoon, J. Lee, B.-K. Kim, J. M. Kim, M. H. Park, C. W. Yang, K. H. An, Y. H. Lee, Dispersion stability of single-walled carbon nanotubes using nafion in bisolvent, **Journal of Physical Chemistry C** 111, 2477 (2007)

15. J.-B. Park, D.K. Yi, **J.-Y. Choi**, S.J. Choi, I.-Y. Song, J.-H. Lee, Three-dimensional electron tomography of nanocrystals arrayed on three-dimensional structures, **Journal of Electrochemical Society**, 154, 202 (2007)

14. J. W. Park, E. H. Chae, S. H. Kim, J. H. Lee, J. W. Kim, S. M. Yoon, **J.-Y. Choi**, Preparation of fine Ni powders from nickel hydrazine complex, **Materials Chemistry and Physics**, 97, 371 (2006)

13. K.S. Seol, S. J. Choi, **J.-Y. Choi**, E.-J. Jang, B.-K. Kim, S.-J. Park, D.-G. Cha, I.-Y. Song, J.-B. Park, Y. Park, S.-H. Choi, Pd-nanocrystal-based nanovolatile memory structrures with asymmetric SiO2/HfO2 tunnel barrier, **Applied Physics Letters** 89, 083109 (2006)

12. J. Lee, T. Jeong, J. Heo, S.-H Park, D. Lee, J.-B. Park, H. Han, Y. Kwon, I. Kovalev, S.-M. Yoon, **J.-Y. Choi**, Y. Jin, J. M. Kim, K. H. An, Y. H. Lee, S. Yu., Short carbon nanotubes produced by cryogenic crushing, **Carbon** 44, 2984 (2006)

11. M. An, J.-D. Hong, K.-S. Cho, S.-M. Yoon, E.-S. Lee, B. K Kim, **J.-Y. Choi**, Spin-coating electrostatic self-assembly: fabrication method for CdSe nanoparticle monolayer, **Bull. Korean Chem. Soc**. 27, 1119 (2006)

10. S. Lee, J.-A. Choi, U. Paik, S.-M. Yoon and **J.-Y. Choi**, Dispersant-ethyl cellulose binder interactions at the Ni particle-dihydroterpineol interface, **Journal of American Ceramic Society**, 89 3050 (2006)

9. **J.-Y. Choi**, H. C. Lee, Y.-Y. Lee, S.-M. Yoon, K. M. Kim and J.-H. Lee, A new chemical Route to large-scale preparation of spherical and mono-disperse Ni powders for Multilayer ceramic capacitor, **Journal of American Ceramic Society**, 88, 3020 (2005)

8. J.–Y. Lee, S.-H. Hong, J.-H. Lee, Y. K. Lee, **J.-Y. Choi**, Uniform coating of nanometer-scale BaTiO3 layer on spherical Ni particles via hydrothermal conversion of Ti-hydroxide, **Journal of American Ceramic Society**, 88, 303 (2005)

7. J.-H. Lee, Y. K. Lee, **J. Y. Choi**, Coating of TiO2 nano-layer on spherical Ni particles, **Journal of Materials Research**, 19, 1669 (2004)

6. J.-Y. Lee, J.-H. Lee, S.-H. Hong, Y. K. Lee, **J.-Y. Choi**, Coating BaTiO3 nanolayers on spherical Ni powders for multilayer ceramic capacitors,” **Advanced Materials**, 15, 1655 (2003)

5. **J.-Y. Choi**, D. K. Kim, Preparation of monodisperse and spherical powders by heating of alcohol-aqueous salt solution, **Journal of Sol-Gel Science and Technology**, 15, 231 (1999)

4. **J.-Y. Choi**, C. H. Kim, D. K. Kim, Carbothermic Synthesis of Monodispersed Spherical Si3N4/SiC Nanocomposite Powder, **Journal of American Ceramic Society**, 82, 2665 (1999)

3. **J.-Y. Choi**, Y. T. Moon, D. K. Kim, C. H. Kim, Pyrolytic conversion of spherical organo-silica powder to silicon nitride under nitrogen, **Journal of American Ceramic Society**, 81, 2294 (1998)

2. **J.-Y. Choi**, C. H. Kim, D. K. Kim, Hydrothermal synthesis of spherical perovskite oxide powders using spherical gel powders, **Journal of American Ceramic Society**, 81, 1353 (1998)

1. **J.-Y. Choi**, C. H. Kim, D. K. Kim, Formation and characterization of monodisperse, spherical organo-silia powders from organo-alkoxysilane-water system**, Journal of American Ceramic Society**, 81, 1184 (1998)

**◾ Paper Contributed to Book**

1. **J.-Y. Choi**, C. H. Kim, D. K. Kim, Synthesis of monodisperse spherical Si3N4/SiC Composite powder from alkoxides by sol-gel process and heat-treatment; pp. 153-161 in Ceramic transactions, Vol 74, Advances in Ceramic-Matrix Composites III. Edited by N. P. Nansal and J. P. Singh. The American Ceramic Society, Westerville, OH, 1996

**◾ Domestic Journal Paper**

1. **J.-Y. Choi**, Ming Ji Jin, J. H. Kim, D. K. Kim, Synthesis of Monodisperse Spherical Powders by Wet-Chemical Process, Inorganic Materials (Korean), 1997. 6

2. H. K. Park, Y. S. Han, **J.-Y. Choi**, D. K. Kim, J. H. Kim, Synthesis of Monodisperse Spherical Powders Using Mixed-Solvent, Inorganic Materials (Korean), 1996. 1

3. Y. T. Moon, **J.-Y. Choi**, D. K. Kim, and J. H. Kim, Synthesis of monodisperse spherical ceramic powders by wet-chemical process,” Inorganic Materials (Korean), 1995. 1

|  |
| --- |
| Patent |
|  | Domestic | International |
|  | 194 | 219 |
| Total | 413 |
| Comments | **# of papers about nanomaterials and device applications: 413****# of papers about carbon-based (CNT, Graphene) materials: 124**1. **Graphene**

◾ Issued the world’s first original patent of graphene growth in 2007 at Samsung (Korean patent; Graphene sheet and process of preparing the same, 10-2009-0026568, Filed Sept. 10. 2007, US patent; Graphene sheet and process of preparing the same, US8,075,864 B2, Filed Jul. 7. 2008)◾ Ranked as #1 in the worldwide ranking of inventors by number of graphene patent filed according to the report of **Nature Materials**, 11, 2-5 (2012).◾ **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Jae Yong Han, Single crystalline graphene sheet and process of preparing the same, China Application 200810169624.0◾ **Jae Young Choi**, Graphene sheet comprising intercalation compound and process of preparing the same, US Application 707,213◾ **Jae Young Choi**, Keun Soo Kim, Byung Hee Hong, Method for removing a carbonization catalyst from a graphene sheet and method for transferring the graphene sheet, EU Application 09167413.51. **CNT**

◾ **Jae Young Choi**, Seong Jae Choi, Hyeon Jin Shin, Seon Mi Yoon, Dispersan for carbon nanotubes and corbon nanotube composition comprising the same, US Application 829,620◾ **Jae Young Choi**, Chan Ho Pak, Seok Gwang Doo, Jeong Hee Lee, Young Hee Lee, Kay Hyeok An, Sung Jin Kim, Carbon nanotube, support catalyst, method of preparing the support catalyst and a fuel cell comprising the support catalyst, US Application 897,144◾ **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Bo Ram Kang, Young Hee Lee, Un Jung Kim, Carbon nanotube n-doping material, carbon nanotube n-doping method and device using the same, US Application 350,558◾ **Jae Young Choi**, Woo Jong Yu, Un Jeong Kim, Young Hee Lee, Method of doping transistor comprising carbon nanotube, method of controlling position of doping ion, and transistors using the same, US Application 232,958◾ **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Carbon nano-tube(CNT) light emitting device and method of manufacturing the same, US Application 961,577 |

**◾ Patent**

413. 최재영, 김범준, 상온 단결정 그래핀 성장기술, 10-2021-0048996

412. **최재영**, 채수동, 오승배, 김범준, ONE-DIMENSIONAL NANO0CHAIN STRUCTURE AND PREPARING METHOD THEREOF, 16/591,695

411. **최재영**, 채수동, 김범준, 오승배, 최경환, 정병주, 일차원 나노 사슬 구조체 및 이의 제조 방법, 10-2019-0079092

410. **최재영**, 채수동, 김범준, 오승배, 최경환, 정병주, 이차원 나노 구조체 및 이의 제조 방법, 10-2019-0079083

409. 이정헌, **최재영**, 이진웅, 채수동, 오승배, 김시현, 세포 부착 및 생장용 기판 및 이의 제조 방법, 10-2019-0054616

408. **최재영**, 김용호, 채수동, 오승배, 김남형, 김수현, 나노 복합체 및 나노 복합체를 포함하는 분산액의 제조 방법, 10-2019-0079814

407. **최재영**, 윤원섭, 채수동, 김범준, 오승배, 최경환, 정병주, 이차원 나노 구조체의 제조 방법, 10-2019-0079086

406. **최재영**, 채수동, 김범준, 오승배, 최경환, 정병주, 일차원 나노 사슬 구조체 및 이의 제조 방법, 10-2019-0079090

405. **최재영**, 이정헌, 김시현, 오승배, 채수동, 이진웅, 하이드로젤 복합체 및 이의 제조 방법, 10-2019-0079807

404. **최재영**, 유지범, 오승배, 치 린린, 어슉 우글리, 팽창 그라파이트 제조방법, 팽창된 산화 그래핀 제조 방법 및 이로부터 제조된 팽창된 산화 그래핀, 10-2019-0031752

403. **최재영**, 채수동, 유지범, 김민규, 산화안정제를 이용한 저결함 산화 그래핀 제조방법 및 이에 의하여 제조되는 산화그래핀, 10-2018-0093701

402. **최재영**, 채수동, 오승배, 김범준, 일차원 물질 및 그의 제조방법, 10-2018-0121416

401. **최재영**, 채수동, 오승배, 김범준, 일차원물질 및 그의 제조방법, 10-2018-0121415

400. **최재영**, 채수동, 오승배, 최경환, 일차원 물질, 10-2019-0010793

399. **최재영**, 채수동, 오승배, 최경환, 1차원 물질, 10-2019-0110792

398. **최재영**, 채수동, 이성호, 박장호, 소수성 다공성 실리카의 제조 방법, PCT Application, PCT/KR2017/008924

397. **최재영**, 채수동, 이성호, 박장호, 소수성 다공성 실리카 및 이의 제조 방법, PCT Application, PCT/KR2017/008979

396. 박희정, **최재영**, 채수동, 프로톤화 전도성 금속 산화물 나노시트 및 이의 제조방법, 10-2017-0095817

395. **최재영**, 김범준, Tuqeer Nasir, 실리콘 고분자 중합체 및 이를 포함하는 그래핀 전사용 고분자, 10-2017-0137172

394. **최재영**, 채수동, 이성호, 박장호, 소수성 다공성 실리카의 제조 방법, 10-2017-0041572

393. **최재영**, 채수동, 이성호, 박장호, 소수성 다공성 실리카 및 이의 제조 방법, 10-2017-0041874

392. 황동목, **최재영**, 김기철, 임재영, 최수동, 화학 기상 증착 장치, 10-2015-0113403

391. 황동목, **최재영**, 김기철, 서영민, 황석문, 화학 기상 증착 장치, 10-2015-0113404

390. 황동목, 김범준, 장현식, **최재영**, 김기철, 화학 기상 증착 장치의 반응 챔버, 10-2015-0113405

389. 신현진, **최재영**, 이영희, 한강희, 그라펜 나노리본의 제조방법 및 상기 제조방법에 의해 얻어진 그라펜 나노리본, P0053031

388. 신현진, **최재영**, 이영희, 한강희, 그라펜 층수 제어방법, P2010-0060659

387. 신현진, **최재영**, 안종렬, 전철호, 알칼리 금속 함유 단일층 그라펜 및 이를 포함하는 전기소자, P2010-0058229

386. 신현진, **최재영**, 이영희, 한강희, 초소수성 그라팬 및 그의 제조방법, P2010-0053032

385. 최원묵, **최재영**, J. Zhang, Xuechun Yu, 신현진, 윤선미, 플러렌계 화합물을 이용한 탄소나노튜브 제조방법 및 상기 방법으로 제조된 탄소나노튜브, P2010-0058234

383. 윤선미, 닝홍롱, **최재영**, 정창오, 최원묵, 신현진, CNT 조성물, CNT 막구조체, 액정표시장치, CNT 막구조체의 제조방법 및 액정표시장치의 제조방법, P2010-0046591

382. 최덕현, **최재영**, 이상윤, 김상우, 전기 에너지 발생 장치 및 그 제조 방법, P2010-0046629

381. 윤선미, **최재영**, 신현진, 김기강, 이영희, 최성재, 환원재를 이용하여 전자가 주입된 탄소 나노튜브와 그 제조 방법 및 그를 이용한 전기 소자, P2009-0107171

380. 신현진, **최재영**, 한강희, 이영희, 그라펜 적층체 및 그의 제조방법, 대한민국 출원 P2009-0109796

379. 최원묵, Guo Hong, **최재영**, Jin Zhang, 광조사를 이용한 반도체성 카본나노튜브의 선택적 성장방법, 대한민국 출원 P2009-0109186

378. 신현진, **최재영**, 안종렬, 전철호, 산화막 형성 방법, 대한민국 출원 P2009-0131294

377. D. Choi, J.-Y. choi, E.-S. Kim, J.-S. Rhyee, Thermoelectric touch sensor, US Application 12/827,266

376. 최덕현, **최재영**, 김억수, 이종수, Thermoelectric touch sensor, 대한민국 출원 P2009-0134921

375. 인수강, 최웅, **최재영**, 유기 태양 전지 및 그 제조 방법, 대한민국 출원 P2009-0097444

374. **최재영**, 유인경, e-memo 시스템, 대한민국 출원 P2009-0131838

373. **최재영**, 신현진, 윤선미, 그라펜 시트 및 그의 제조방법, 대한민국 출원 P2009-0087653

372. 최덕현, **최재영**, 김상우, 전기 에너지 발생 장치 및 그 제조 방법, 대한민국 출원 P2009-0094323

371. 최덕현, **최재영**, 이상윤, 김상우, 전기 에너지 발생 장치 및 그 제조 방법, 대한민국 출원 P2009-0094374

370. 이정현, **최재영**, 김규식, Organic diode를 이용한 거리 센서, 대한민국 출원 진행중

369. 최원묵, **최재영**, 트랜지스터 및 이를 구비한 평판표시장치, 대한민국 출원 P2009-0118449

368. 신현진, **최재영**, 윤선미, 최원묵, 신현진, 도펀트로 도핑된 그라펜 및 이를 이용한 소자, 대한민국 출원 P2009-0118450

367. **최재영**, 최원묵, 그라펜을 이용한 유기발광소자, 대한민국 출원 P2009-0117838

366. 최덕현, **최재영**, 김도환, 압전 나노와이어 구조체 및 이를 포함하는 전기 기기, 대한민국 출원 P2009-0104648

365. **최재영**, 김도환, 인수강, 그라펜 및 유기공액분자의 적층 구조체 및 그의 제조방법, 대한민국 출원 P2009-0104985

364. **최재영**, 최원묵, 최덕현, 김상우, 신경식, 그라펜 및 무기물 함유 구조체 및 그의 제조방법, 대한민국 출원 P2009-0117834

363. 인수강, **최재영**, 최덕현, 전기 기기, 대한민국 출원 P2009-0102982

362. 김규식, **최재영**, 에너지 생성 가능한 디스플레이 장치, 대한민국 출원 P2009-0075722

361. 김규식, **최재영**, 이상윤, 터치 패널, 대한민국 출원 P2009-0076864

360. 신현진, **최재영**, 윤선미, 박막 트랜지스터 및 이를 구비한 평판표시장치, 대한민국 출원 P2009-0101727

359. B. Xavier, W. Choi, J.-Y. Choi, Optoelectronic device, US Application 12/700,229

358. 자비에, 최웅, **최재영**, 광전자 소자, 대한민국 출원 P2009-0080813

357. 윤선미, **최재영**, 최원묵, 신현진, 그라펜 시트, 이를 포함하는 그라펜 기재 및 그의 제조 방법, 대한민국 출원 P2009-0103555

356. 최덕현, **최재영**, 이상윤, 김상우, 전기 에너지 발생 장치 및 그 제조 방법, 대한민국 출원 P2009-0078948

355. H. J. Shin, W. M. Choi, S.-M. Yoon, J.-Y. Choi, Graphene base and method of preparing the same, US Application 12/815,791

354. 신현진, 최원묵, 윤선미, **최재영**, 그라펜 기재 및 그의 제조방법, 대한민국 출원 P2009-0072116

353. W. Choi, C. Manish, S. Y. Jeong, J.-Y. Choi, Method for preparing gallium nitride nanoparticles, US Application 688,381

352. Manish Chowalla, 정승열, 최웅, **최재영**, 질화갈륨 나노입자의 제조 방법, 대한민국 출원 P2009-0055664

351. 인수강, 최웅, **최재영**, 유기 태양 전지 및 그 제조방법, 대한민국 출원 P2009-0059273

350. S.-G. Ihn, W. Choi, **J.-Y. Choi**, Organic solar cell and method of fabricating the same, US Application 697,654

349. 인수강, **최재영**, 최웅, 유기 태양 전지 및 그 제조방법, 대한민국 출원 P2009-0049248

348. **J.-Y. Choi,** W. Choi, S.-G. Ihn, Organic solar cell and method of fabricating the same, US Application 693,746

347. Duk Hyun Choi, **Jae Young Choi**, Apparatus for generating electrical energy and method for manufacturing the same, US Application 535,967

346. 최덕현, **최재영**, 전기 에너지 발생 장치 및 그 제조 방법, 대한민국 출원 P2009-0029584

345. **Jae Young Choi**, Graphene sheet comprising intercalation compound and process of preparing the same, US Application 707,213

344. **최재영**, 층간 화합물 함유 그라펜 시트 및 그의 제조 방법, 대한민국 출원 P2009-0013137

343. **최재영**, 김상우, 최덕현, 전기 에너지 발생 장치 및 그 제조 방법, 대한민국 출원 P2008-0123612

342. Won Mook Choi, Byung Hee Hong, **Jae Young Choi**, Method for chemical modification of a graphene edge, graphene with a chemically modified edge and devices inclusing the graphene, US Application 576,061

341. 최원묵, 홍병희, **최재영**, 그라펜 에지의 화학적 변형 방법 및 이에 의하여 얻어진 그라펜, 대한민국 출원 P2009-0003302

340. 최원묵, Bo Zhang, **최재영**, Jin Zhang, 크로스 바 구조의 탄소나노튜브 제조 방법 및 이에 의하여 얻어진 크로스 바 구조의 탄소나노튜브, 대한민국 출원 P2009-0003303

339. Chang Ho Noh, Seon Mi Yoon, **Jae Young Choi**, Electrochromic device and method of fabricating the same, EU Application 09166366.6

338. Chang Ho Noh, Seon Mi Yoon, **Jae Young Choi**, Electrochromic device and method of fabricating the same, US Application 500,092

337. 노창호, 윤선미, **최재영**, 전기변색 소자 및 그 제조 방법, 대한민국 출원 P2009-0010966

336. 김억수, **최재영**, 진동 터치 스크린 패널과 그 제조 방법, 대한민국 출원 P2008-0133346

335. Duk Hyun Choi, **Jae Young Choi**, Sang Woo Kim, Apparatus for generating electrical energy and method for manufacturing the same, US Application 482,147

334. 최덕현, **최재영**, 김상우, 전기 에너지 발생 장치 및 그 제조 방법, 대한민국 출원 P2008-0131376

333. Eok Su Kim, **Jae Young Choi**, Vibration touch sensor, method for vibration touch sensing and vibration touch screen display panel, US Application 628,625

332. 김억수, **최재영**, 진동 터치 센서와 진동 터치 센싱 방법 및 진동 터치 스크린 디스플레이 패널, 대한민국 P2008-0133345

331. Duk Hyun Choi, **Jae Young Choi**, Sang Yoon Lee, Sang Woo Kim, Han Soo Kim, Apparatus for storing energy and method for manufacturing the same, US Application 408,274

330. 최덕현, 이상윤, **최재영**, 김상우, 김한수, 에너지 저장 장치 및 그 제조 방법, 대한민국 출원 P2008-0121493

329. **Jae Young Choi**, Sang Woo Kim, Method for forming a nanostructure, a nanostructure, and a device using the same, US Application 468,586

328. **최재영**, 김상우, 나노 구조물의 제조 방법, 나노 구조물 및 이를 이용하는 소자, 대한민국 출원 P2008-0116956

327. Hyeon Jin Shin, **Jae Young Choi**, Seon Mi Yoon, Soo Min Kim, Young Hee Lee, Un Jung Kim, Carbon-nanotube n-doping material and methods of manufacture thereof, US Application 347,221

326. 신현진, **최재영**, 윤선미, 김수민, 이영희, 김언정, 탄소나노튜브 엔 도핑 물질 및 이를 이용한 엔 도핑 방법, 대한민국 출원 P2008-0119974

325. 윤선미, **최재영**, 신현진, 이정건, 박종면, 열전달 매체 및 이를 이용한 열 전달 방법, 대한민국 출원 P2008-0087992

324. Eok Su Kim, **Jae Young Choi**, Won Mook Choi, Duk Hyun Choi, Touch screen panel integrated into liquid crystal display, method of manufacturing the same, and touch sensing method, US Application 431,994

323. 김억수, **최재영**, 최원묵, 최덕현, 액정 표시 장치에 일체화된 터치 스크린 패널과 그 제조 방법 및 터치 센싱 방법, 대한민국 P2008-0105925

322. 김억수, **최재영**, 최원묵, 최덕현, 와이어 그리드를 이용한 편광 터치 스크린 패널, 대한민국 출원 P2008-0103203

321. **Jae Young Choi**, Keun Soo Kim, Byung Hee Hong, Method for removing a carbonization catalyst from a graphene sheet and method for transferring the graphene sheet, EU Application 09167413.5

320. **Jae Young Choi**, Keun Soo Kim, Byung Hee Hong, Method for removing a carbonization catalyst from a graphene sheet and method for transferring the graphene sheet, US Application 434,883

319. **최재영**, 김근수, 홍병희, 그라펜 시트로부터 탄소화 촉매를 제거하는 방법 및 그라펜 시트의 전사 방법, 대한민국 출원 P2008-0105556

318. **Jae Young Choi**, Sang Woo Kim, 圧電物質のナノチューブ製造方法及び圧電物質のナノチューブ, Japan Application 2009-241637

317. **Jae Young Choi**, Sang Woo Kim, Method for preparing nanotubes of piezoelectric material and nanotubes of piezoelectric material obtained thereby, US Application 12/605,991

316. **최재영**, 김상우, 압전 물질의 나노 튜브 제조 방법 및 압전 물질의 나노 튜브, 대한민국 출원 P2008-0105558

315. **Jae Young Choi**, Jong Min Kim, Sang Yoon Lee, Apparatus and method for converting energy, US Application 372,369

314. **최재영**, 김종민, 이상윤, 에너지 변환 장치 및 방법, 대한민국 출원 P2008-0091193

313. **Jae Young Choi**, Sang Woo Kim, Apparatus for generating electrical energy and method for manufacturing the same, US Application 350,584

312. **최재영**, 김상우, 전기 에너지 발생 장치 및 그 제조 방법, 대한민국 출원 P2008-0077595

311. Suk Pil Kim, Yoon Dong Park, **Jae Young Choi**, June Mo Koo, Byung Hee Hong, Semiconductor devices including auxiliary gate electrodes and methods of gabricating the same, US Application 12/544,631

310. **김석필**, 홍병희, 박윤동, 최재영, 구준모, 반도체 소자 및 그 제조 방법, 대한민국 출원 P2008-0090686

309. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Bo Ram Kang, Young Hee Lee, Un Jung Kim, カーボンナノチューブ ｎ－ドーピング物質及び方法、これを利用した素子, Japan Application 2008-309018

308. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Bo Ram Kang, Young Hee Lee, Un Jung Kim, Carbon nanotube n-doping material, carbon nanotube n-doping method and device using the same, US Application 350,558

307. **최재영**, 신현진, 윤선미, 강보람, 이영희, 김언정, 탄소나노튜브 엔 도핑 물질 및 방법, 이를 이용한소자, 대한민국 출원 P2008-0053349

306. Hyeon Jin Shin, Seon Mi Yoon, **Jae Young Choi,** グラフェンシートから炭素化触媒を除去する方法、炭素化触媒が除去されたグラフェンシートを素子に転写する方法、及び該方法によるグラフェンシート及び素子, Japan Application 2009-003718

305. Hyeon Jin Shin, Seon Mi Yoon, **Jae Young Choi**, Method for exfoliating carbonization catalyst from graphene sheet, method for transferring graphene sheet from which carbonization catalyst is exfoliated to device, graphene sheet and device using the graphene sheet. US Application 358,830

304. 신현진, 윤선미, **최재영**, 그라펜 시트로부터 탄소화 촉매를 제거하는 방법, 탄소화 촉매가 제거된 그라펜 시트를 소자에 전사하는 방법, 이에 따른 그라펜 시트 및 소자, 대한민국 출원 P2008-0055310

303. Seon Mi Yoon, **Jae Young Choi**, Hyeon Jin Shin, Young Hee Lee, Ki Kang Kim, Method for controlling optic interband transition of carbon nanotubes, the carbon nanotubes resulting therefrom and devices comprise the carbon nanotubes, US Application 370,202

302. 윤선미, **최재영**, 신현진, 이영희, 김기강, 탄소나노튜브의 광학적 인터 밴드 전이 제어 방법, 이에 따른 탄소나노튜브 및 이를 이용한 소자, 대한민국 출원 2008-0054588

301. **최재영**, 신현진, 윤선미, 그라펜 패턴 및 그의 형성방법, 대한민국 출원 P2008-0023458

300. **최재영**, 신현진, 윤선미, 그라펜 시트 및 그의 제조방법, 대한민국 P0923304

299. **Jae Young Choi**, Woo Jong Yu, Un Jeong Kim, Young Hee Lee, Method of doping transistor comprising carbon nanotube, method of controlling position of doping ion, and transistors using the same, US Application 232,958

298. **최재영**, 유우종, 김언정, 이영희, 탄소나노튜브를 구비한 트랜지스터의 도핑방법 및 도핑 이온의 위치 제어 방법 및 트랜지스터, 대한민국 2008-0033882

297. Moon Seok Kwon, Seon Mi Yoon, Jae Man Choi, Han Su Kim, Hyeon Jin Shin, **Jae Young Choi**, Electrode, lithium battery, method of manufacturing electrode, and composition for coating electrode, China Application 200810169867.4

296. Moon Seok Kwon, Seon Mi Yoon, Jae Man Choi, Han Su Kim, Hyeon Jin Shin, **Jae Young Choi**, Electrode, lithium battery, method of manufacturing electrode, and composition for coating electrode, EU Application 08165744.7

295. Moon Seok Kwon, Seon Mi Yoon, Jae Man Choi, Han Su Kim, Hyeon Jin Shin, **Jae Young Choi**, 電極、リチウム電池、電極製造方法及び電極コーティング用組成物, Japan Application 2008-303095

294. Moon Seok Kwon, Seon Mi Yoon, Jae Man Choi, Han Su Kim, Hyeon Jin Shin, **Jae Young Choi**, Electrode, lithium battery, method of manufacturing electrode, and composition for coating electrode, US Application 184,580

293. 권문석, 윤선미, 최재만, 김한수, 신현진, **최재영**, 전극, 리튬 전지, 전극 제조 방법 및 전극 코팅용 조성물, 대한민국 P2008-0004590

292. **최재영**, 이정희, 박찬호, 라은주, 안계혁, 이영희, 연료 전지용 탄소 나노 파이버, 이를 포함한 나노 복합체, 그 제조 방법 및 이를 채용한 연료 전지, 대한민국 출원 P2007-0103168

291. Seon Mi Yoon, Hyeon Jin Shin, **Jae Young Choi**, Method of preparing graphene shell and graphene shell prepared using the method, China Application 200810170303.2

290. Seon Mi Yoon, Hyeon Jin Shin, **Jae Young Choi**, グラフェンシェルの製造方法及びこれから製造されたグラフェンシェル, Japan Application 2008-318431

289. Seon Mi Yoon, Hyeon Jin Shin, **Jae Young Choi**, Method of preparing graphene shell and graphene shell prepared using the method, US Application 131,703

288. 윤선미, 신현진, **최재영**, 그라펜 쉘의 제조방법 및 이로부터 제조된 그라펜 쉘, 대한민국 출원 P2007-0132681

287. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Jae Yong Han, Single crystalline graphene sheet and process of preparing the same, China Application 200810169624.0

286. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Jae Yong Han, 単結晶グラフェンシート及びその製造方法 , Japan Application 2008-318418

285. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Jae Yong Han, Single crystalline graphene sheet and process of preparing the same, US Application 170,014

284. **최재영**, 신현진, 윤선미, 한재용, 단결정 그라펜 시트 및 그의 제조방법, 대한민국 출원 P2007-0132682

283. Hyeon Jin Shin, **Jae Young Choi**, Seon Mi Yoon, Reduced graphene oxide doped with dopant, thin layer and transparent electrode. US Application 171,551

282. 신현진, **최재영**, 윤선미, 도펀트로 도핑된 산화그라펜의 환원물, 이를 포함하는 박막 및 투명전극, 대한민국 출원 P2007-0126947

281. 신현진, **최재영**, 최성재, 윤선미, 투명 나노복합 조성물, 대한민국 출원 P2007-0085497 (등록결정)

280. Kyung Bae Park, Seon Mi Yoon, Sang Yoon Lee, Jae Young Choi, Hyeon Jin Shin, Myung Kwan Ryu, Tae Sang Kim, Jang Yeon Kwon, Kyung Seok Son, Ji Sim Jung, Poly-crystalline thin film, thin film transistor formed from a poly-crystalline thin film and methods of manufacturing the same, US Application 219,265

279. 박경배, 윤선미, 이상윤, **최재영**, 신현진, 류명관, 김태상, 권장연, 손경석, 정지심, 다결정 실리콘 박막 및 이를 적용하는 박막 트랜지스터의 제조방법, 대한민국 출원 P2007-0118827

278. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Graphene sheet and method of preparing the same, Chian Application 200810213761.X

277. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Graphene sheet and method of preparing the same, EU Application 08167766.8

276. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, グラフェンシート及びその製造方法, Japan Application 2008-277065

275. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Graphene sheet and method of preparing the same, US Application 169,114

274. **최재영**, 신현진, 윤선미, 그라펜 시트 및 그의 제조방법, 대한민국 출원 P2007-0108860

273. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, ナノドット形成方法、ナノドットを備えるメモリ素子の製造方法、ナノドットを備えるチャージトラップ層及びこれを備えるメモリ素子, Japan Application 2008-262228

272. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Method of forming nano dots, method of fabricating the memory device including the same, charge trap layer including the nano dots and memory device including the same, US Application 081,357

271. **최재영**, 신현진, 윤선미, 나노도트 형성방법, 이 방법으로 형성된 나노도트를 포함하는 메모리 소자 및 제조방법, 대한민국 P2007-0104734

270. Seon Mi Yoon, **Jae Young Choi**, Hyeon Jin Shin, Jeong Gun Lee, Jong Myeon Park, Heat transfer medium and heat transfer method using the same, China Application 200810129249.7

269. Seon Mi Yoon, **Jae Young Choi**, Hyeon Jin Shin, Jeong Gun Lee, Jong Myeon Park, 熱伝達媒体及びこれを利用した熱伝達方法, Japan Application 2008-228611

268. Seon Mi Yoon, **Jae Young Choi**, Hyeon Jin Shin, Jeong Gun Lee, Jong Myeon Park, Heat transfer medium and heat transfer method using the same, US Application 124,818

267. 윤선미, **최재영**, 신현진, 이정건, 박종면, 열 전달 매체 및 이를 이용한 열 전달 방법, 대한민국 출원 P2007-0091180

266. Hyeon Jin Shin, **Jae Young Choi**, Seon Mi Yoon, Byung Do Oh, Jae Yong Han, Method of fabrication of liquid film, method of arranging nano particles and substrate to have liquid thin film manufactured using the same, US Application 039,248

265. 신현진, **최재영**, 윤선미, 오병도, 한재용, 액체막 형성방법, 이를 이용한 나노입자 배열방법 및 액체 박막 기판, 대한민국 출원 P2007-00900925

264. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Graphene pattern and process of preparing the same, US Application 122,293

263. **최재영**, 신현진, 윤선미, 그라펜 패턴 및 그의 형성방법, 대한민국 출원 P2007-0094895

262. 송훈, 김정우, 이홍석, **최재영**, 디스플레이 장치, 대한민국 출원 P2007-0091644

261. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Graphene sheet and process of preparing the same, PCT Application, PCT/KR2008/0045

260. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Graphene sheet and process of preparing the same, US Application 168,440

259. **최재영**, 신현진, 윤선미, 그라펜 시트 및 그의 제조방법, 대한민국 출원 P2007-0091642

258. Hyeon Jin Shin, Seon Mi Yoon, **Jae Yong Choi**, Jin Seung Sohn, Eun Hyoung Cho, A carbon nano-tube film with a transformed substrate structure and a manufacturing method thereof, US Application 055,755

257. 신현진, 윤선미, **최재영**, 손진승, 조은형, 변형된 기판 구조를 갖는 탄소 나노튜브 막 및 그 제조 방법, 대한민국 출원 2007-0089464

256. **Jae Yong Choi**, Hyeon Jin Shin, Seon Mi Yoon, Young Hee Lee, Transparent electrode comprising graphene sheet, and display and solar cell including the electrode, US Application 105,738

255. **최재영**, 윤선미, 신현진, 이영희, 그라펜 시트를 함유하는 투명 전극, 이를 채용한 표시소자 및 태양전지, 대한민국 출원 2007-0093253

254. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Graphene shell and process of preparing the same, PCT Application PCT/KR2008/0045

253. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Graphene shell and process of preparing the same, US Application 132,319

252. **최재영**, 신현진, 윤선미, 그라펜 쉘 및 그의 제조방법, 대한민국 출원 2007-0092650

251. **최재영**, 최성재, 신현진, 윤선미, 탄소나노튜브용 분산제 및 이를 포함하는 탄소나노튜브 조성물, 대한민국 P0847987

250. Seon Mi Yoon, Hyeon Jin Shin, **Jae Young Choi**, Ki Kang Kim, Young Hee Lee, 還元剤を用いて電子が注入されたＣＮＴ、その製造方法及びそれを利用した電気素子, Japan Application 2008-187201

249. Seon Mi Yoon, Hyeon Jin Shin, **Jae Young Choi**, Ki Kang Kim, Young Hee Lee, Carbon nano-tubes having electrons injected using reducing agents, method for manufacturing the same, US Application 117,140

248. 윤선미, 신현진, **최재영**, 김기강, 이영희, 환원제를 이용하여 전자가 주입된 탄소 나노튜브와 그 제조 방법 및 그를 이용한 전기 소자, 대한민국 출원 P2007-0072673 (등록결정)

247. Hyeon Jin Shin, Seon Mi Yoon, Jung Jun Bae, Young Hee Lee, **Jae Young Choi**, Seong Jae Choi カーボンナノチューブの分離方法と分散方法、及びこれら方法に用いられる組成物, Japan Application 2008-169186

246. Hyeon Jin Shin, Seon Mi Yoon, Jung Jun Bae, Young Hee Lee, **Jae Young Choi**, Seong Jae Choi, Method for deparating carbon nanotubes, method for dispersing carbon nanotubes and compositions used for the methods, US Application 062,614 (등록결정)

245. 신현진, 윤선미, 배정준, 이영희, **최재영**, 최성재, 탄소나노튜브의 분리 방법과 분산 방법 및 이들 방법에 이용되는 조성물, 대한민국 P090724

244. **Jae Young Choi**, Jae Yong Han, シェル型電気泳動粒子及びこれを適用したディスプレイ素子, Japan Application 2008-188362

243. **Jae Young Choi**, Jae Yong Han, Shell-type electrophoretic particle, display device including the particle, and method thereof, US Application 958,494

242. **최재영**, 한재용, 셀형 전기 영동 입자 및 이를 적용한 디스플레이 소자, P0862664

241. **Jae Young Choi**, Jae Yong Han, Surface Plasmon display device and method thereof, US Application 948,217

240. **최재영**, 한재용, 표면 플라즈몬 디스플레이 소자, 대한민국 P0888479

239. **Jae Young Choi**, Jae Yong Han, Electrophoretic display device, US Application 126,506

238. **최재영**, 한재용, 전기 영동 디스플레이 소자, 대한민국 P0862665

237. Hyeon Jin Shin, Seon Mi Yoon, **Jae Young Choi**, Soo Min Kim, Young Hee Lee, Seong Jae Choi, Carbon nano-tube (CNT) thin film treated with chemical having electron withdrawing functional group and manufacturing method thereof, US Application 031,332

236. 신현진, 윤선미, **최재영**, 김수민, 이영희, 최성재, 전자를 받을 수 있는 작용기를 가진 화학물질로 처리한 탄소 나노 튜브 박막 및 그 제조방법, 대한민국 P0907025

235. **Jae Young Choi**, Hyeon Jin Shin, Seon Mi Yoon, Carbon nano-tube(CNT) light emitting device and method of manufacturing the same, US Application 961,577

234. **최재영**, 신현진, 윤선미, 탄소 나노튜브 발광소자 및 그 제조방법, 대한민국 P0857542

233. **Jae Young Choi**, Jae Yong Han, Electro-dielectro-phoretic display device and method thereof, US Application 948,242

232. **최재영**, 한재용, 전기-유전 영동 디스플레이 소자, 대한민국 P0862666

231. Hyeon Jin Shin, Seon Mi Yoon, **Jae Young Choi**, Seong Jae Choi, Carbon Nano-tube(CNT) thin film comprising an amine compound, and a manufacturing method thereof, US Application 034,358

230. 신현진, 윤선미, **최재영**, 최성재, 아민 화합물을 포함하는 탄소 나노튜브(CNT) 박막 및 그 제조방법, 대한민국 P0913700

229. Seong Jae Choi, Hyeon Jin Shin, Seon Mi Yoon, In Yong Song, **Jae Young Choi**, 金属ナノ粒子を含むカーボンナノチューブ（ＣＮＴ）薄膜及びその製造方法, Japan Application 2008-162475

228. Seong Jae Choi, Hyeon Jin Shin, Seon Mi Yoon, In Yong Song, Jae Young Choi, Carbon Nano-tube (CNT) thin film comprising a metal nano-particle, and a manufacturing method thereof, US Application 060,902

227. 윤선미, 신현진, 송인용, **최재영**, 최성재, 금속 나노입자를 포함하는 탄소 나노튜브(CNT) 박막 및 그 제조 방법, 대한민국 P0924766

226. Hyeon Jin Shin, **Jae Young Choi**, Seong Jae Choi, Seon Mi Yoon, Method of selectively separating carbon nanotubes, electrode comprising metallic carbon nanotubes separated by the method and oligomer dispersant for selectively separating carbon nanotubes, US Application 123,015

225. 신현진, **최재영**, 최성재, 윤선미, 탄소나노튜브의 선택적 분리 방법, 상기 방법으로 분리된 탄소나노튜브를 포함하는 전극 및 탄소나노튜브용 올리고머 분산제, 대한민국 P0902509

224. Seon Mi Yoon, Hyeon Jin Shin, **Jae Young Choi**, Sung Jin Kim, Young Hee Lee, Seong Jae Choi, Carbon nanotube having improved conductivity, process of preparing the same, and electrode comprising the carbon nanotube, China Application 200810107802.7

223. Seon Mi Yoon, Hyeon Jin Shin, **Jae Young Choi**, Sung Jin Kim, Young Hee Lee, Seong Jae Choi, Carbon nanotube having improved conductivity, process of preparing the same, and electrode comprising the carbon nanotube, EU Application 08157017.8

222. Seon Mi Yoon, Hyeon Jin Shin, **Jae Young Choi**, Sung Jin Kim, Young Hee Lee, Seong Jae Choi, 伝導性の改善されたカーボンナノチューブ、その製造方法及び該カーボンナノチューブを含有する電極, Japan Application 2008-135550

221. Seon Mi Yoon, Hyeon Jin Shin, **Jae Young Choi**, Sung Jin Kim, Young Hee Lee, Seong Jae Choi, Carbon nanotube having improved conductivity, process of preparing the same, and electrode comprising the carbon nanotube, US Application 043,519

220. 윤선미, 신현진, **최재영**, 김성진, 이영희, 최성재, 전도성이 개선된 카본나노튜브, 그의 제조방법 및 상기 카본나노튜브를 함유하는 전극, 대한민국 출원 P2007-0052868

219. Hyeon Jin Shin, **Jae Young Choi**, Seong Jae Choi, Seon Mi Yoon, Method of modifying carbon nanotube using radical initiator, and dispersion liquid and electrode comprising the carbon nanotube modified by using the method, US Application 026,081

218. 신현진, **최재영**, 최성재, 윤선미, 라디칼 개시재를 이용한 탄소나노튜브의 개질 방법, 및 상기 방법으로 개질된 탄소나노튜브를 포함하는 분산액 및 전극, 대한민국 P0893528

217. **Jae Young Choi**, Seong Jae Choi, Hyeon Jin Shin, Seon Mi Yoon, Ki Kang Kim, Young Hee Lee ,カーボンナノチューブ含有透明電極及びその製造方法, Japan Application 2008-058443

216. **Jae Young Choi**, Seong Jae Choi, Hyeon Jin Shin, Seon Mi Yoon, Ki Kang Kim, Young Hee Lee, Transparent electrode comprising carbon nanotube and method of preparing the same, US Application 045,216

215. **최재영**, 최성재, 신현진, 윤선미, 이영희, 김기강, 카본나노튜브 함유 투명 전극 및 그의 제조 방법, 대한민국 출원 P2007-0023590

214. Hyeon Jin Shin, **Jae Young Choi**, Seong Jae Choi, Seon Mi Yoon, Carbon nanotube dispersion and method of preparing transparent electrode using the carbon nanotube dispersion, US Application 023,924

213. 신현진, **최재영**, 최성재, 윤선미, 탄소나노튜브 분산액, 대한민국 P0851983

212. **Jae Young Choi**, Seong Jae Choi, Hyeon Jin Shin, Seon Mi Yoon, Dispersan for carbon nanotubes and corbon nanotube composition comprising the same, China Application 200810082617.7

211. **Jae Young Choi**, Seong Jae Choi, Hyeon Jin Shin, Seon Mi Yoon, Dispersan for carbon nanotubes and corbon nanotube composition comprising the same, EU Application 07116657.3

210. **Jae Young Choi**, Seong Jae Choi, Hyeon Jin Shin, Seon Mi Yoon, カーボンナノチューブ用分散剤およびこれを含むカーボンナノチューブ組成物, Japan Application 2008-044773

209. **Jae Young Choi**, Seong Jae Choi, Hyeon Jin Shin, Seon Mi Yoon, Dispersan for carbon nanotubes and corbon nanotube composition comprising the same, US Application 829,620

208. **최재영**, 최성재, 신현진, 윤선미, 탄소나노튜브용 분산제 및 이를 포함하는 탄소나노튜브 조성물, 대한민국 출원 P2007-0019534

207. Seon Mi Yoon, Hyeon Jin Shin, **Jae Young Choi**, Seong Jae Choi, Bum Jae Lee, Ungyu Paik, Sangkyu Lee, Jung Hwan Lee, Dispersant having multifunctional head and phosphor paste composition comprising the same, US Application 852,734

206. 윤선미, 신현진, **최재영**, 최성재, 이범재, 백운규, 이정환, 이상규, 다기능 관능기 헤드를 갖는 분산제 및 이를 포함하는 형광체 페이스트 조성물, 대한민국 P0841188

205. **Jae Young Choi**, Chan Ho Pak, Seok Gwang Doo, Jeong Hee Lee, Young Hee Lee, Kay Hyeok An, Sung Jin Kim, Carbon nanotube, support catalyst, method of preparing the support catalyst and a fuel cell comprising the support catalyst, US Application 897,144

204. **최재영**, 박찬호, 두석광, 이정희, 이영희, 안계혁, 김성진, 탄소나노튜브, 담지 촉매, 상기 담지 촉매의 제조 방법 및 상기 담지 촉매를 포함한 연료 전지, 대한민국 P0829555

203. 최성재, 설광수, **최재영**, 이동기, 윤선미, 나노결정을 포함하는 메모리 소자 제조 방법 및 이에 의해 제조된 메모리 소자, 대한민국 P0837413

202. **Jea Young Choi**, Jeong Hee Lee, Chan Ho Pak, Eun Ju Ra, Young Hee Lee, Kay Hyeok An, Nanocomposite for fuel cell, method of preparing the nanocomposite, and fuel cell including the nano composite, US Application 985,531

201. **최재영**, 이정희, 박찬호, 라은주, 이영희, 안계혁, 연료 전지용 탄소 나노 파이버, 이를 포함한 나노 복합체, 그 제조 방법 및 이를 채용한 연료전지, 대한민국 출원 P2007-0007643

200. Hyeon Jin Shin, **Jae Young Choi**, In Yong Song, Dong Kee Yi, Seong Jea Choi, Seon Mi Yoon, UV light-blocking material with metal nanoparticles, US Application 939,489

199. 신현진, **최재영**, 송인용, 이동기, 최성재, 윤선미, 금속 나노입자를 이용한 자외선 차단 재료, 대한민국 출원 P2007-0002914

198. Hyeon Jin Shin, **Jae Young Choi**, Dong Kee Yi, Seong Jae Choi, Seon Mi Yoon, Image display device with plural light emitting diodes, US Application 939,128

197. 신현진, **최재영**, 이동기, 최성재, 윤선미, 복수의 발광 소자를 가진 화상 표시 장치, 대한민국 P0785923

196. Kee Yi, Seon Mi Yoon, **Jae Young Choi**, O Ok Park, Mun Ho Kim, Hong Kyoon Choi , 網状ＣＮＴ薄膜層を含むＣＮＴ透明電極およびその製造方法, Japan Application 2008-007353

195. Dong Kee Yi, Seon Mi Yoon, **Jae Young Choi**, O Ok Park, Mun Ho Kim, Hong Kyoon Choi, Transparent carbon nanotube electrode with net-like carbon nanotube film and preparation method thereof, US Application 767,273

194. 이동기, 윤선미, **최재영**, 박오옥, 김문호, 최홍균, 망상 CNT 박막층을 포함하는 CNT 투명전극 및 그의 제조방법, 대한민국 P0883737

193. Seong Jae Choi, Kyung Sang Cho, **Jae Young Choi**, Dong Kee Yi, Hyeon Jin Shin Seon Mi Yoon, In Yong Song, Jong Hyeon Lee, Duk Young Jung, Geun Tae Cho, Substrate for patterning and method for forming a pattern of nanocrystals using the same, US Application 757,018

192. 최성재, 조경상, **최재영**, 이동기, 신현진, 윤선미, 송인용, 이종현, 조근태, 정덕영, 패턴형성용 기판 및 이를 이용한 나노결정 패턴형성 방법, 대한민국 P0825176

191. Won Jae Joo, Seong Jae Choi, **Jae Young Choi**, Sang Kyun Lee, Kwang Hee Lee, Organic memory device and fabrication method thereof, US Application 790,178

190. 주원제, 최성재, **최재영**, 이상균, 이광희, 유기 메모리 소자 및 그의 제조방법, 대한민국 출원 P2006-0136287

189. Byoung Ho Cheong, **Jae Young Choi**, June Mo Koo, Moon Gyu Lee, Wire grid polarizer and method of manufacturing the same, US Application 760,812

188. 정병호, **최재영**, 구준모, 이문규, 와이어 그리드 편광자 및 이의 제조방법, 대한민국 출원 P2006-0115424

187. Yoon Sun Choi, **Jae Young Choi**, Moon Gyu Lee, Method of fabricating wire grid polarizer, US Application 847,404

186. 최윤선, **최재영**, 이문규, 와이어 그리드 편광자 제조방법, 대한민국 출원 P2006-0115423

185. Seon Mi Yoon, **Jae Young Choi**, Dong Kee Yi, Seong Jae Choi, Transparent carbon nanotube electrode using conductive dispersant and production method thereof, China 200710162507.7

184. Seon Mi Yoon, **Jae Young Choi**, Dong Kee Yi, Seong Jae Choi, Transparent carbon nanotube electrode using conductive dispersant and production method thereof, EU Application 7116655.7

183. Seon Mi Yoon, **Jae Young Choi**, Dong Kee Yi, Seong Jae Choi, 伝導性分散剤を用いたＣＮＴ透明電極およびその製造方法, Japan Application 2007-268075

182. Seon Mi Yoon, **Jae Young Choi**, Dong Kee Yi, Seong Jae Choi, Transparent carbon nanotube electrode using conductive dispersant and production method thereof, US Application 735,178

181. 윤선미, **최재영**, 이동기, 최성재, 신현진, 전도성 분산제를 이용한 CNT 투명전극 및 그의 제조 방법, 대한민국 P0790216

180. **Jae Young Choi**, Jee Hwan Jang, Sun Il Kim, Electrowetting Lens, US Application 774693

179. **최재영**, 장지환, 김선일, 전기습윤 렌즈, 대한민국 P0818281

178. Seong Jae Choi, Dong Kee Yi, Seon Mi Yoon, Hyeon Jin Shin, **Jae Young Choi**, 蛍光体の流動特性制御方法、蛍光体及び蛍光体ペースト, Japan Application 2007-257741

177. Seong Jae Choi, Dong Kee Yi, Seon Mi Yoon, Hyeon Jin Shin, **Jae Young Choi**, Method for controlling fluidity of phosphor, phosphor and phosphor paste, US Application 748, 297

176. 최성재, 이동기, 윤선미, 신현진, **최재영**, 형광체의 유동특성 제어 방법, 형광체 및 형광체 페이스트, 대한민국 P0841171

175. Seong Jae Choi, **Jae Young Choi**, Eun Joo Jang, Bulliard Xavier, Yu Jin Kang, Wan Ki Bae, Kook Heon Char, ナノ粒子の分散方法及びこれを用いたナノ粒子薄膜の製造方法, Japan Application 2007-240955

174. Seong Jae Choi, **Jae Young Choi**, Eun Joo Jang, Bulliard Xavier, Yu Jin Kang, Wan Ki Bae, Kook Heon Char, Method for dispersing nanoparticles and methods for producing nanoparticle thin films by using the same, US Application 696,451

173. 최성재, **최재영**, 송인용, 장은주, 차국헌, Bulliard Xavier, 강유진, 배완기, 나노입자의 분산방법 및 이를 이용한 나노입자 박막의 제조방법, 대한민국 P0768632

172. Hyeon Jin Shin, **Jae Young Choi**, Seong Jae Choi, Seon Mi Yoon, Nanocomposite composition comprising transparent nanoparticles, US Application 748,345

171. 신현진, **최재영**, 최성재, 윤선미, 투명 나노입자를 포함하는 나노복합 조성물, 대한민국 출원 P2006-0098821

170. **Jae Young Choi**, Joo Hoon Lee, Hyeon Jin Shin, Keypad assembly for electronic equipment, EU Application 07105101.5

169. **Jae Young Choi**, Joo Hoon Lee, Hyeon Jin Shin, 電子機器のキーパッドアセンブリ, Japan Application 2007-240962

168. **Jae Young Choi**, Joo Hoon Lee, Hyeon Jin Shin, Keypad assembly for electronic equipment, US 7,446,274

167. **최재영**, 이주훈, 신현진, 전자기기의 키패드 어셈블리, 대한민국 P0773558

166. **Jae Young Choi**, 電気湿潤オイル表示素子、及び電気湿潤オイル表示素子の電圧制御方法, Japan Application 2007-188755

165. **Jae Young Choi**, Electrowetting optical device and method of controlling voltage of the same, US 7,593,153

164. **최재영**, 전기습윤 오일표시소자 및 전기습윤 오일표시소자의 전압제어 방법, 대한민국 P0723431

163. Young Gyoon Ryu, Sang Kook Mah, **Jae Young Choi**, Seok Soo Lee, Organic electrolyte solution including electrografting monomer and lithium battery using the same, China Application 200710005780.9

162. Young Gyoon Ryu, Sang Kook Mah, **Jae Young Choi**, Seok Soo Lee, 電気化学的グラフティングモノマーを含む有機電解液、及びそれを採用したリチウム電池, Japan Application 2007-186311

161. Young Gyoon Ryu, Sang Kook Mah, **Jae Young Choi**, Seok Soo Lee, Organic electrolyte solution including electrografting monomer and lithium battery using the same, US Application 690,030

160. 류영균, 마상국, **최재영**, 이석수, 전기화학적 그라프팅 모노머를 포함하는 유기전해액, 및 이를 채용한 리튬 전지, 대한민국 P0846479

159. Young Gyoon Ryu, Sang Kook Mah, **Jae Young Choi**, Seok Soo Lee, Silane compound, organic electrolyte solution using the silane compound, and lithium battery using the organic electrolyte solution, China Application 200710005782.8

158. Young Gyoon Ryu, Sang Kook Mah, **Jae Young Choi**, Seok Soo Lee, シラン化合物、それを採用した有機電解液及びリチウム電池, Japan Application 2007-188669

157. Young Gyoon Ryu, Sang Kook Mah, **Jae Young Choi**, Seok Soo Lee, Silane compound, organic electrolyte solution using the silane compound, and lithium battery using the organic electrolyte solution, US Application 688,783

156. 류영균, 마상국, **최재영**, 이석수, 실란 화합물, 이를 채용한 유기전해액 및 리튬 전지, 대한민국 P0803197

155. Woong Chul Shin, Kyung Sang Choi**, Jae Young Choi**, Youn Seon Kang, Method of surface treating a phase change layer and method of manufacturing a phase change memory device using the same, China Application 200710096084.3

154. Woong Chul Shin, Kyung Sang Choi, **Jae Young Choi**, Youn Seon Kang, 相変化層の表面処理工程を含む相変化メモリ素子の製造方法, Japan Application 2007-267039

153. Woong Chul Shin, Kyung Sang Choi, **Jae Young Choi**, Youn Seon Kang, Method of surface treating a phase change layer and method of manufacturing a phase change memory device using the same, US Application 907,472

152. 신웅철, 조경상, **최재영**, 강윤선, 상변화층의 표면처리공정을 포함하는 상변화 메모리 소자의 제조 방법, 대한민국 출원 P2006-0100009

151. 최성재, 최재영, 이동기, 권순재, 설광수, 신현진, 윤선미, 고강도 유리섬유의 제조방법 및 이에 의해 제조된 고강도 유리섬유를 포함하는 기판, 대한민국 P0745316

150. Seong Jae Choi, **Jae Young Choi**, Kwang Soo Seol, Dong Kee Yi, Seon Mi Yoon, Method of preparing patterned carbon nanotube array and patterned carbon nanotube array prepared thereby, US Application

149. 최성재, **최재영**, 설광수, 이동기, 윤선미, 탄소나노튜브 패턴 형성방법 및 그에 의해 수득된 탄소나노튜브 패턴, 대한민국 2006-0047465

148. Dong Kee Yi, June Moo Koo, Seong Jae Choi, **Jae Young Choi**, Young Kwan Cha, Hyo Sug Lee, Hyuk Soon Choi, Kwang Hee Kim, Method of forming nanoparticle array using capillarity and nanoparticle array prepared thereby, US Application 680,277

147. 이동기, 구준모, 최성재, **최재영**, 차영관, 이효석, 최혁순, 김광희, 모세관력을 이용한 나노입자 배열 방법 및 그에 의해서 제조된 나노입자, 대한민국 출원 2006-0047462

146. Kwang Soo Seol, **Jae Young Choi**, Dong Kee Yi, Seong Jae Choi, Nano-magnetic memory device and methods of manufacturing such devices, China ZL200610171137.9

145. Kwang Soo Seol, **Jae Young Choi**, Dong Kee Yi, Seong Jae Choi, ナノ磁気メモリ素子とその製造方法, Japan Application 2007-012009

144. Kwang Soo Seol, **Jae Young Choi**, Dong Kee Yi, Seong Jae Choi, Nano-magnetic memory device and methods of manufacturing such devices, US Application 604,679

143. 설광수, **최재영**, 이동기, 최성재, 나노 자기 메모리 소자와 그 제조방법, 대한민국 P0702669

142. Seon Mi Yoon, Jae Young Choi, Ungyu Paik, Jin Hyon Lee, Dispersed solution of carbon nanotubes and method of preparing the same, US Application 624,928

141. 윤선미, **최재영**, 백운규, 이진헌, 탄소나노튜브 분산액 및 그 제조 방법, 대한민국 P0773551

140. **Jae Young Choi**, Sung Ho Jin, Seong Jae Choi, Ultraviolet luminescent ink and security system using the same, US Application 519,112

139. **최재영**, 진성호, 최성재, 자외선 발광 잉크 및 이를 이용한 보안시스템, 대한민국 P0744351

138. **최재영**, 조경상, 이은성, 박종봉, 윤선미, 송상훈, 홍종달, 나노입자의 분산방법 및 이를 이용한 나노입자 박막의 제조방법, 대한민국 P0741242

137. Kwang Soo Seol, Byoung Ho Cheong, **Jae Young Choi**, Seong Jae Choi, Surface emitting device and method for fabricating the same, US 7,609,929

136. 설광수, 정병호, **최재영**, 최성재, 표면발광소자 및 그의 제조방법, 대한민국 출원 P2006-0032461

135. 최성재, 설광수, **최재영**, 이동기, 윤선미, 나노결정을 포함하는 메모리 소자 제조 방법 및 이에 의해 제조된 메모리 소자, 대한민국 출원 P2006-0019302

134. 류영균, 김도윤, **최재영**, 이석수, 송상훈, 유기 전해액 및 이를 채용한 리튬 전지, 대한민국 P0813240

133. Kwang Soo Seol, Seong Jae Choi, **Jae Young Choi**, Yo Sep Min, Eun Joo Jang, Dong Ki Yi, ナノ結晶を有するメモリ素子及びその製造方法, Japan Application 2007-50617

132. Kwang Soo Seol, Seong Jae Choi, **Jae Young Choi**, Yo Sep Min, Eun Joo Jang, Dong Ki Yi, Memory device comprising nanocrystals and method of manufacturing the same, US 7,501,680

131. 설광수, 최성재, **최재영**, 민요셉, 장은주, 이동기, 나노결정을 포함하는 메모리 소자 및 그 제조 방법, 대한민국 P2006-0019301

130. **Jae Young Choi**, Byoung Lyong Choi, Dong Kee Yi, Kwang Soo Seol, Seong Jae Choi, Light emitting device with three-dimensional structure and fabrication method thereof, US Application 534,710

129. **최재영**, 최병룡, 이동기, 설광수, 최성재, 3차원 구조의 발광소자 및 그의 제조방법, 대한민국 출원 P2005-0125765

128. Kook Min Han, **Jae Young Choi**, Seon Mi Yoon, Sang Yoon Lee, Jong Min Kim, Byung Ki Kim, Wet processable orgaic transistor using CNTs enhanced their semiconducting properties. US Application 512,178

127. 한국민, **최재영**, 윤선미, 이상윤, 김종민, 김병기, 반도체성 비율을 높인 탄소나노튜브를 이용한 유기 반도체 소재, 유기 반도체 박막 및 이를 채용한 유기 반도체 소자, 대한민국 출원 P2006-0010628

126. Hyo Sug Lee, **Jae Young Choi**, Seon Mi Yoon, Hyuk Soon Choi, Kwang Hee Kim, Aromatic imide-based dispersant for carbon nanotubes and carbon nanotube composition comprising the same, US Application 562,208

125. 이효석, **최재영**, 윤선미, 최혁순, 김광희, 아로마틱이미드계 탄소나노튜브용 분산제 및 그를 포함하는 탄소나노튜브 조성물, 대한민국 출원 P2006-0006852

124. Kwang Hee Kim, **Jae Young Choi**, Seon Mi Yoon, Hyuk Soon Choi, Hyo Sug Lee, Dispersant for dispersing carbon nanotubes and carbon nanotube composition comprising the same, US 7,456,310

123. **Jae Young Choi**, Jee Hwan Jang, Byung Do Oh, ディスプレイ装置, Japan Application 2007-10345

122. **Jae Young Choi**, Jee Hwan Jang, Byung Do Oh, Display device, US Application 674,177

121. Jae Ho Lee, Seong Jae Choi, Eun Sung Lee, **Jae Young Choi**, シロキサン系分散剤及びこれを含むナノ粒子ペースト組成物, Japan Application 2007-004880

120. Jae Ho Lee, Seong Jae Choi, Eun Sung Lee, **Jae Young Choi**, Effect of functionalized silicone on dispersion of nanoparticles in PDMS, US 7,598,314

119. 이재호, 최성재, 이은성, **최재영**, 실록산계 분산제 및 이를 포함하는 나노입자 페이스트 조성물, 대한민국 출원 P2006-0006213

118. Seon Mi Yoon, **Jae Young Choi**, Eun Sung Lee, Do Yoon Kim, Yong Kyun Lee, Dispersant for dispersing carbon nanotubes and carbon nanotube composition comprising the same, UA Application 337,154

117. 윤선미, **최재영**, 이은성, 김도윤, 이용균, 탄소나노튜브용 분산제 및 그를 포함하는 탄소나노튜브 조성물, 대한민국 P0735996

116. 이은성, 이돈익, **최재영**, 윤선미, 김슬기, 분산제, 이를 포함한 페이스트 조성물, 이를 사용하여 제조되는 무기소자 및 이를 채용한 표시 소자, 대한민국 P0790864

115. 이은성, **최재영**, 김슬기, 이돈익, 인산계 분산제를 포함하는 형광체 페이스트 조성물 및 이를 이용하는 표시장치, 대한민국 출원 P2005-0085166

114. Seong Jae Choi, Jae Ho Lee, **Jae Young Choi**, Eun Sung Lee, Don Ik Lee, キャッピング配位子が表面に結合しているナノ粒子用分散剤、これを用いたナノ粒子の分散方法、及びこれを含むナノ粒子薄膜, Japan Application 2006-309328

113. Seong Jae Choi, Jae Ho Lee, **Jae Young Choi**, Eun Sung Lee, Don Ik Lee, Dispersant for dispersing nanoparticles surface bound with copping ligands, method for dispersing nanoparticles using the same, and nanoparticle thin film comprising the same, US Application 512,967, 등록결정

112. 최성재, 이재호, **최재영**, 이은성, 이돈익, 캡핑 리간드가 표면에 결함되어 있는 나노입자용 분산제, 이를 이용한 나노입자의 분산방법 및 이를 포함하는 나노입자 박막, 대한민국 출원 P2005-0109607

111. Byoung Lyong Choi, Byung Ki Kim, Kyung Sang Cho, Soon Jae Kwon, **Jae Young Choi**, Light-emitting device comprising semiconductor nanocrystal layer free of voids and method for fabricating the same, US Application 390,851

110. 최병룡, 김병기, 조경상, 권순재, **최재영**, 간극을 채운 반도체 나노결정층을 함유하는 발광소자 및 그 제조방법, 대한민국 출원 P2005-0090082

109. Don Ik Lee, Eun Sung Lee, **Jae Young Choi**, Seon Mi Yoon, チオール系分散剤、及びそれを含む硫化系蛍光体ペースト組成物, Japan Application 2006-285489

108. Don Ik Lee, Eun Sung Lee, **Jae Young Choi**, Seon Mi Yoon, Thiol dispersant and sulfide phosphor paste composition comprising the same, US 7,473,514

107. Don Ik Lee, Eun Sung Lee, **Jae Young Choi**, Seon Mi Yoon, Sulfur-containing dispersant and sulfide phosphor paste composition comprising the same, US Application 270,052

106. 이돈익, 이은성, **최재영**, 윤선미, 티올계 분산제 및 그를 포함하는 황화계 형광체 페이스트 조성물, 대한민국특허 출원 p2005-00999064

105. 설광수, 조경상, 김병기, 이재호, **최재영**, 나노닷 메모리 및 그 제조 방법, 대한민국출원 P2005-0083324

104. Kwang Soo Seol, Byung Ki Kim, Eun Kyung Lee, Yo Sep Min, Kyung Sang Cho, Jae Ho Lee, **Jae Young Choi**, Semiconductor memory device using nanodots as trap site and method of fabricating the same, China Application 200610143565.0

103. Kwang Soo Seol, Byung Ki Kim, Eun Kyung Lee, Yo Sep Min, Kyung Sang Cho, Jae Ho Lee, **Jae Young Choi,** ナノドットをトラップサイトとして利用したメモリ素子及びその製造方法, Japan Application 2006-304422

102. Kwang Soo Seol, Byung Ki Kim, Eun Kyung Lee, Yo Sep Min, Kyung Sang Cho, Jae Ho Lee, **Jae Young Choi**, Semiconductor memory device using nanodots as trap site and method of fabricating the same, US Application 594,966

101. 설광수, 김병기, 이은경, 민요셉, 조경상, 이재호, **최재영**, 나노 닷을 트랩 사이트로 이용한 메모리 소자 및 그 제조 방법, 대한민국출원 P2005-0108126

100. Eun Sung Lee, **Jae Young Choi**, Don Ik Lee, Seon Mi Yoon, シランヘッドを有する分散剤及びそれを含む蛍光体ペースト組成物, Japan Application 2006-285494

99. Eun Sung Lee, **Jae Young Choi**, Don Ik Lee, Seon Mi Yoon, Dispersant having silane head and phosphor paste composition comprising the same, US Application 440,248

98. 이은성, **최재영**, 이돈익, 윤선미, 실란 헤드를 갖는 분산제 및 그를 포함하는 형광체 페이스트 조성물, 대한민국특허 출원 P2005-0099090

96. Eun Sung Lee, **Jae Young Choi**, Don Ik Lee, Xiaoqing Zeng, Seon Mi Yoon, Carboxylic ester dispersant and sulfide phosphor paste composition having same, US 7,560,054

97. Eun Sung Lee, **Jae Young Choi**, Don Ik Lee, Xiaoqing Zeng, Seon Mi Yoon, カルボキシルエステル系分散剤及びそれを含む硫化系蛍光体ペースト組成物, Japan Application 2006-257931

95. 이은성, **최재영**, 이돈익, 샤오칭, 윤선미, 카르복실 에스테르계 분산제 및 그를 포함하는 황화계 형광체 페이스트 조성물, 대한민국특허 출원 P2005-0089970

94. Seon Mi Yoon, Eun Sung Lee, **Jae Young Choi**, Do Yoon Kim, 炭素ナノチューブ用分散剤及びこれを含む組成物, Japan Application 2006-226542

93. Seon Mi Yoon, Eun Sung Lee, **Jae Young Choi**, Do Yoon Kim, Dispersant for carbon nanotube and composition comprising the same, US Application 352,137

92. 윤선미, 이은성, **최재영**, 김도윤, 탄소나노튜브용 분산제 및 이를 포함하는 조성물, 대한민국특허 P0815028

91. Seung Jae Im, Byung Ki Kim, Xiaoqing Zeng, **Jae Young Choi**, Photoluminescent liquid crystal display, China Application 06254300.4

90. Seung Jae Im, Byung Ki Kim, Xiaoqing Zeng, **Jae Young Choi**, Photoluminescent liquid crystal display, US Application 497,041

89. Kwang Soo Seol, Kyung Sang Cho, Byung Ki Kim, Eun Hae Lee, **Jae Young Choi**, ナノドットメモリ及びその製造方法, Japan Application 2006-237890

88. Kwang Soo Seol, Kyung Sang Cho, Byung Ki Kim, Eun Hae Lee, **Jae Young Choi**, 奈米點記憶體及其製法, Taiwan Application 095132361

87. 설광수, 조경상, 김병기, 이은혜, **최재영**, 나노닷 메모리 및 그 제조 방법, 대한민국특허 출원 P2005-0081790

86. Seon Mi Yoon, Jung Hee Lee, Eun Sung Lee, **Jae Young Choi**, Dispersant for highly concentrated carbon nanotube solution and composition including same, US Application 446,972

85. 윤선미, 이정희, 이은성, **최재영**, 고농도 탄소나노튜브 용액용 분산제 및 이를 포함한 조성물, 대한민국특허 출원 P2005-0068346

84. 류영균, 김도윤, **최재영**, 이석수, 송상훈, 유기 전해액 및 이를 채용한 리튬 전지, 대한민국 P0813240

83. Yong Gyoon Ryu, Eun Sung Lee, **Jae Young Choi**, Seok Soo Lee, Su Jin Kim, Organic electrolytic solution and lithium battery employing the same, China Application 200610106166.7

82. Yong Gyoon Ryu, Eun Sung Lee, **Jae Young Choi**, Seok Soo Lee, Su Jin Kim, 有機電解液及びそれを採用したリチウム電池, Japan Application 2006-189761

81. Yong Gyoon Ryu, Eun Sung Lee, **Jae Young Choi**, Seok Soo Lee, Su Jin Kim, Organic electrolytic solution and lithium battery employing the same, US Application 488,215

80. 류영균, 이은성, **최재영**, 이석수, 김수진, 유기 전해액 및 이를 채용한 리튬 전지, 대한민국특허 P083192

79. Seon Mi Yoon, Eun Sung Lee, **Jae Young Choi**, Seul Ki Kim, Jong Gap Baik, Seo Ho Lee, Mixed dispersant, paste composition and dispersion method using the same, China Application 200510121601.9

78. Seon Mi Yoon, Eun Sung Lee, **Jae Young Choi**, Seul Ki Kim, Jong Gap Baik, Seo Ho Lee, 混合分散剤、それを利用したペースト組成物及び分散方法, Japan Application 2005-380112

77. Seon Mi Yoon, Eun Sung Lee, **Jae Young Choi**, Seul Ki Kim, Jong Gap Baik, Seo Ho Lee, Mixed dispersant, paste composition and dispersion method using the same, Taiwan Application 094147600

76. Seon Mi Yoon, Eun Sung Lee, **Jae Young Choi**, Seul Ki Kim, Jong Gap Baik, Seo Ho Lee, Mixed dispersant, paste composition and dispersion method using the same, US 7,463,477

75. 윤선미, 이은성, **최재영**, 김슬기, 백종갑, 이서호, 혼합 분산제, 이를 이용한 페이스트 조성물 및 분산방법, 대한민국특허 P0773534

74. Eun Sung Lee, **Jae Young Choi**, Seon Mi Yoon, Seul Ki Kim, Joon Hee Kim, Jong Gap Baik, Phosphate dispersant, paste composition and dispersion method using the same, Taiwan I307342

73. 이은성, **최재영**, 윤선미, 김슬기, 김준희, 백종갑, 인산계 분산제, 이를 이용한 페이스트 조성물 및 분산방법, 대한민국특허 P0790856

72. Kyung Sang Cho, **Jae Young Choi**, Eun Sung Lee, Seon Mi Yoon, Jong Dal Hong, Method for dispersing nanoparticles and method for producing nanoparticle thin film by the dispersion method, US Application 392,543

71. 조경상, **최재영**, 이은성, 윤선미, 홍종달, 나노입자의 분산방법 및 이를 이용한 나노입자 박막의 제조 방법, 대한민국 출원 P2005-0060215

70. Eun Sung Lee, **Jae Young Choi**, Seon Mi Yoon, Seul Ki Kim, Mixed dispersants containing paste composition and display device including the same, US Application 451,661

69. 이은성, **최재영**, 윤선미, 김슬기, 혼합 분산제를 포함하는 페이스트 조성물 및 이를 채용한 표시 소자, 대한민국 출원 P2005-0050493

68. Eun Sung Lee, **Jae Young Choi**, Seul Ki Kim, Seon Mi Yoon, Nam Seok Baik, Sung Ki Yoon, Dispersant, paste compostion including the dispersant, inorganic device using the paste composition, and display apparatus including the inorganic device, US Application 480,186

67. Eun Sung Lee, **Jae Young Choi**, Seon Mi Yoon, Nam Seok Baik, Yong Joon Jang, Paste composition, US Application 479,811

66. 이은성, **최재영**, 김슬기, 윤선미, 백남석, 장용준, 페이스트 조성물, 대한민국특허 출원, P2005-0058639

65. Byung Ki Kim, Seong Jae Im, **Jae Young Choi**, Yoon Sok Kang, Jae Hee Cho, Seon Mi Yoon, Photo-luminescence liquid crystal display, US Application 444,328

64. 김병기, 임승재, **최재영**, 강윤석, 조제희, 윤선미, 자발광 LCD, 대한민국 출원, P2005-0047346

63. **Jae Young Choi**, Byung Ki Kim, Seong Jae Im, Eun Sung Lee, Kyung Sang Cho, Eun Joo Jang , Photo-luminescence liquid crystal display, US Application 410,621 등록결정

62. **Jae Young Choi**, Byung Ki Kim, Seong Jae Im, Eun Sung Lee, Kyung Sang Cho, Eun Joo Jang, Photo-luminescence liquid crystal display, US Application 336,815

61. **최재영**, 김병기, 임승재, 이은성, 조경상, 장은주, 자발광 LCD, 대한민국특허 P0745751

60. Young Gyoon Ryu, **Jae Young Choi**, Eun Sung Lee, Seok Soo Lee, Organic electrolytic solution and lithium battery employing the same, China 등록

59. Young Gyoon Ryu, **Jae Young Choi**, Eun Sung Lee, Seok Soo Lee, 有機電解液及びそれを採用したリチウム電池, Japan Application 2006-42628

58. Young Gyoon Ryu, **Jae Young Choi**, Eun Sung Lee, Seok Soo Lee, Organic electrolytic solution and lithium battery employing the same, US Application 357,429

57. 류영균, **최재영**, 이은성, 이석수, 유기 전해액 및 이를 채용한 리튬 전지, 대한민국 출원 P2005-0013526

56. **최재영**, 김태경, 이학준, 김순호, 윤선미, 탄소함유 니켈 분말 및 그 제조 방법, 대한민국특허 P0695131

55. Yong Kyun Lee, Hyun Chul Lee, **Jae Young Choi**, Seon Mi Yoon, Method for surface treatment of nickel particles with acid solution, China Application 200510113809.6

54. Yong Kyun Lee, Hyun Chul Lee, **Jae Young Choi**, Seon Mi Yoon, 酸溶液を用いたニッケル粒子の表面処理方法, Japan Application 2005-358259

53. Yong Kyun Lee, Hyun Chul Lee, **Jae Young Choi**, Seon Mi Yoon, Method for surface treatment of nickel particles with acid solution, Taiwan Application 094142824

52. Yong Kyun Lee, Hyun Chul Lee, **Jae Young Choi**, Seon Mi Yoon, Method for surface treatment of nickel particles with acid solution, US Application 131,306

51. 이용균, 이현철, **최재영**, 윤선미, 산용액을 이용한 니켈 입자의 표면 처리 방법, 대한민국 P0709822

50. Seul Ki Kim, Eun Sung Lee, **Jae Young Choi**, Phosphor paste composition comprising phosphate ester as dispersant and display device using the same, US 등록

49. Seon Mi Yoon, **Jae Young Choi**, Yong Kyun Lee, Hyun Chul Lee, Method for surface treatment of nickel nanoparticles with organic solution, China ZL200510118501.0

47. Seon Mi Yoon, **Jae Young Choi**, Yong Kyun Lee, Hyun Chul Lee, Method for surface treatment of nickel nanoparticles with organic solution, Taiwan I271240

48. Seon Mi Yoon, **Jae Young Choi**, Yong Kyun Lee, Hyun Chul Lee, 有機溶液を用いたニッケルナノ粒子の表面処理方法, Japan Application 2005-339492

46. Seon Mi Yoon, **Jae Young Choi**, Yong Kyun Lee, Hyun Chul Lee, Method for surface treatment of nickel nanoparticles with organic solution, US 7,527,752

45. Seon Mi Yoon, **Jae Young Choi**, Yong Kyun Lee, Hyun Chul Lee, Method for surface treatment of nickel nanoparticles with organic solution, US Application 314,953

44. 윤선미, **최재영**, 이용균, 이현철, 유기용액을 이용한 니켈 나노 입자의 표면 처리 방법, 대한민국 P0845688

43. 김순호, **최재영**, 조은범, 이용균, 윤선미, 비자성 니켈분말 제조 방법, 대한민국 P0537524

42. Seon Mi Yoon, **Jae Young Choi**, Yong Kyun Lee, Potapova Yulia, Method of preparing nano scale nickel powders by wet reducing process, China Application 200510064070.4

41. Seon Mi Yoon, **Jae Young Choi**, Yong Kyun Lee, Potapova Yulia, ウェット還元法による極微細ニッケル粉末の製造方法, Japan Application 2005-242767

40. Seon Mi Yoon, **Jae Young Choi**, Yong Kyun Lee, Potapova Yulia, Method of preparing nano scale nickel powders by wet reducing process, Taiwan Application 94112256

39. Seon Mi Yoon, **Jae Young Choi**, Yong Kyun Lee, Potapova Yulia, Method of preparing nano scale nickel powders by wet reducing process, US 7,520,915

38. 윤선미, **최재영**, 이용균, 율리아, 습식 환원법에 의한 극미세 니켈 분말의 제조방법, 대한민국 P0601961

37. **Jae Young Choi**, Tae Kyung Kim, Hak Joon Lee, Soon Ho Kim, Seon Mi Yoon, Carbon-containing nickel-particle powder and method for manufacturing the same, Taiwan Application 93135494

36. **Jae Young Choi**, Tae Kyung Kim, Hak Joon Lee, Soon Ho Kim, Seon Mi Yoon, Carbon-containing nickel-particle powder and method for manufacturing the same, US 7,258,721

35. **Jae Young Choi**, Tae Kyung Kim, Hak Joon Lee, Soon Ho Kim, Seon Mi Yoon, Carbon-containing nickel particle and conductive paste, US 7,572,314

34. Jung Hyun Lee, Hion Suck Baik, Soon Ho Kim, **Jae Young Choi** , Stack-type capacitor, semiconductor memory device having the same, and methods of manufacturing the capacitor and the semiconductor memory device, China Application 200410034356.3

33. Jung Hyun Lee, Hion Suck Baik, Soon Ho Kim, **Jae Young Choi**, Stack-type capacitor, semiconductor memory device having the same, and methods of manufacturing the capacitor and the semiconductor memory device, US Application 10/830,120

32 이정현, 백현석, 김순호, **최재영**, 스택형 커패시터, 그를 구비한 반도체 메모리 소자 및 그 제조 방법, 대한민국 출원 P2003-0032255

31. Soon Ho, Kim, **Jae Young Choi**, Eun Bum Cho, Yong Kyun Lee, Seon Mi Yoon , Method for preparing non-magnetic nickel powders, China ZL200410047402.3

30. Soon Ho, Kim, **Jae Young Choi**, Eun Bum Cho, Yong Kyun Lee, Seon Mi Yoon , 非磁性ニッケル粉末の製造方法, Japan 4133927

29. Soon Ho, Kim, **Jae Young Choi**, Eun Bum Cho, Yong Kyun Lee, Seon Mi Yoon , 一種非磁性鎳粉以及製造方法, Taiwan I243725

28. Soon Ho, Kim, **Jae Young Choi**, Eun Bum Cho, Yong Kyun Lee, Seon Mi Yoon , 一種非磁性鎳粉以及製造方法, Taiwan I234789

27. Soon Ho, Kim, **Jae Young Choi**, Eun Bum Cho, Yong Kyun Lee, Seon Mi Yoon, Method for preparing non-magnetic nickel powders, US 7,211,126

26. Soon Ho Kim, **Jae Young Choi**, Tae Wan Kim, Eun Bum Cho, Yong Kyun Lee, Non-magnetic nickel powders and method for preparing the same, China Patent, ZL200410043022.2

25. Soon Ho Kim, **Jae Young Choi**, Tae Wan Kim, Eun Bum Cho, Yong Kyun Lee, Non-magnetic nickel powders and method for preparing the same, EU (GB, DE, FR) 1469092

24. Soon Ho Kim, **Jae Young Choi**, Tae Wan Kim, Eun Bum Cho, Yong Kyun Lee , 非磁性ニッケル粉末及びその製造方法, Japan 3936706

23. Soon Ho Kim, **Jae Young Choi**, Tae Wan Kim, Eun Bum Cho, Yong Kyun Lee , 一種非磁性鎳粉以及製造方法, Taiwan I243799

22. Soon Ho Kim, **Jae Young Choi**, Tae Wan Kim, Eun Bum Cho, Yong Kyun Lee, Non-magnetic nickel powders and method for preparing the same, US Patent 7,182,801

20. Soon Ho Kim, **Jae Young Choi**, Tae Wan Kim, Eun Bum Cho, Yong Kyun Lee , Non-magnetic nickel powders and method for preparing the same, US Patent 7,399,336

19. Soon Ho Kim, **Jae Young Choi**, Tae Wan Kim, Eun Bum Cho, Yong Kyun Lee, Non-magnetic nickel powders and method for preparing the same, US Application 11/710,406

18. 김순호, **최재영**, 김태완, 조은범, 이용균, 비자성 니켈 분말 및 그 제조 방법(S), 대한민국특허 P0537507

17. Soon Ho Kim, **Jae Young Choi**, Jae Hyung Park, Do Kyung Kim, Metallic nickel powders, method for preparing the same, conductive paste, and MLCC, China Patent ZL200410035216.8

16. Soon Ho Kim, **Jae Young Choi**, Jae Hyung Park, Do Kyung Kim, ニッケル金属粉末とその製造方法、伝導性ペースト及びＭＬＣＣ, Japan Patent 4133910

15. Soon Ho Kim, **Jae Young Choi**, Jae Hyung Park, Do Kyung Kim, 一種金屬鎳粉以及製造方法, Taiwan I277606

14. Soon Ho Kim, **Jae Young Choi**, Jae Hyung Park, Do Kyung Kim, Metallic nickel powders, method for preparing the same, conductive paste, and MLCC, US Patent 7,238,221

13. 김순호, **최재영**, 김도경, 박제형, 니켈금속분말 및 그 제조 방법, 대한민국 P0682884

12. **Jae Young Choi**, Jong Heun Lee, Sung Hyun Hong , A method of coating the surface of an inorganic powder and a coated inorganic powder manufactured using the same, German Patent, 102004008875

11. **Jae Young Choi**, Jong Heun Lee, Sung Hyun Hong , 無機粉末的表面塗佈方法及使用該方法所形成之無機粉末, Taiwan Patent I272318

10. **Jae Young Choi**, Jong Heun Lee, Sung Hyun Hong, A method of coating the surface of an inorganic powder and a coated inorganic powder manufactured using the same, US Application 11/319,450

8. **최재영**, 이종흔, 홍성현, 무기 분말의 코팅 방법 및 이에 의하여 제조된 코팅된 무기 입자, 대한민국특허 P0528330

7. 이정희, 유세기, **최재영**, 정태원, 허정나, 전계방출소자, 대한민국 P0922743

6. 김민석, 유덕영, **최재영**, 이종기, 캐소드 전극, 그 제조 방법 및 이를 채용한 리튬 전지, 대한민국 P043712

5. **최재영**, 이종기, 유덕영, 김민석, 캐소드 전극, 이의 제조방법 및 이를 채용한 리튬 설퍼 전지, 대한민국 P0416098

4. 이종기, 유덕영, 김민석, **최재영**, 캐소드 전극의 제조 방법, 이에 의하여 제조된 캐소드전극 및 이를 채용한 리튬 전지, 대한민국 P0433001

3. **최재영**, 김민석, 유덕영, 승도영, 구형의 나노사이즈 바나듐 산화물 입자의 제조 방법, 대한민국 P0436709

2. 김민석, **최재영**, 유덕영, 승도영, 오산화 이바나듐의 제조 방법, 대한민국 P0393187

1. **최재영**, 김도경, 박동성, 최순식, 자성재료용 고순도 사삼산화망간의 제조 방법, 대한민국 P0255929