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연구분야: 2차원물질의 성장 및 분석

**Profile**

1996 Ph. D. 서울대학교 물리학과

1997 - 1999 Postdoc., University of Illinois at Urbana-Champaign (미국)

1999 - 2002 Postdoc., The Pennsylvania State University (미국)

2002 - 현재 세종대학교 물리학과 교수

2009 - 2011 세종대학교 물리학과 학과장

2009 - 현재 세종대학교 기초물리학연구소 소장

2012 - 2015 세종대학교 공동기기센터 센터장

2007 - 2008 한국물리학회 부실무이사 (풀뿌리 기초과학 살리기 담당)

2011 - 2012 한국물리학회 실무이사 (정책)

2013 - 2014 한국물리학회 운영이사 (정책)

2015 - 2016 한국물리학회 총무이사

2009 - 2012 Journal of the Korean Physical Society, 편집위원

**연구활동 Research activities**

**논문**

* **[국외]**
* Hydrophobic Surface Treatment and Interrupted Atomic Layer Deposition for Highly Resistive Al2O3 Films on Graphene, ACS APPLIED MATERIALS INTERFACES **8** (2016)
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* Surface and interface states of Bi2Se3 thin films investigated by optical second-harmonic generation and terahertz emission, APPLIED PHYSICS LETTERS **108** (2016)
* Bright visible light emission from graphene, NATURE NANOTECHNOLOGY **10** (2015)
* Polarized Raman spectroscopy with differing angles of laser incidence on single-layer graphene, NANOSCALE RESEARCH LETTERS **10** (2015)
* Graphene film growth on sputtered thin Cu-Ni alloy film by inductively coupled plasma chemical vapor deposition, RSC ADVANCES **4** (2014)
* Direct growth of patterned graphene on SiO2 substrates without the use of catalysts or lithography, NANOSCALE **6** (2014)
* Direct Integration of Polycrystalline Graphene into Light Emitting Diodes by Plasma-Assisted Metal-Catalyst-Free Synthesis, ACS NANO **8** (2014)
* Ordered growth of topological insulator Bi2Se3 thin films on dielectric amorphous SiO2 by MBE, NANOSCALE **5** (2013)
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* Spin valve effect of NiFe/graphene/NiFe junctions, NANO RESEARCH **6** (2013)
* Methane as an effective hydrogen source for single-layer graphene synthesis on Cu foil by plasma enhanced chemical vapor deposition, NANOSCALE **5** (2013)
* Hall voltages without a magnetic field in a non-uniform two-dimensional electron system, JOURNAL OF PHYSICS-CONDENSED MATTER **25** (2013)
* Graphitic carbon grown on fluorides by molecular beam epitaxy, NANOSCALE RESEARCH LETTERS **8** (2013)
* Reduction of graphene damages during the fabrication of InGaN/GaN light emitting diodes with graphene electrodes, NANOTECHNOLOGY **23** (2012)
* Carbon molecular beam epitaxy on various semiconductor substrates, MATERIALS RESEARCH BULLETIN **47** (2012)
* Nanoscale investigation of charge transport at the grain boundaries and wrinkles in graphene film, NANOTECHNOLOGY **23** (2012)
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* Graphitic Carbon Growth on MgO(100) by Molecular Beam Epitaxy, JOURNAL OF PHYSICAL CHEMISTRY C **116** (2012)
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* Effect of ferromagnetic nanoparticles on the transport properties of a GaMnAs microbridge, Applied Physics Letters, American Institute of Physics **91-6** (2007)
* Intrinsic anomalous Hall conductivity of GaMnAs solely governed by the carrier concentration, Journal of Magnetism and Magnetic Materials, Elsevier **310** (2007)
* Interplay between Carrier and Impurity Concentrations in Annealed Ga1-xMnxAs: Intrinsic Anomalous Hall Effect, Physical Review Letters, American Physical Society **98-2** (2007)
* Vertical spin transport in MnAs/GaMnAs heterostructures, Journal of Magnetism and Magnetic Materials **304** (2006)
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* Fabrication and characterization of modulation-doped ZnSe/(Zn,Cd)Se (110) quantum wells: A new system for spin coherence studies, Journal of Superconductivity: Incorporating Novel Magnetism **18-2** (2005)
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* **[국내]**
* Measurement of the Intrinsic Anomalous Hall Effect in a 2D Hole Systemwith Rashba Spin-orbit Coupling, Journal of the Korean Physical Society **57-6** (2010)
* Magnetoresistance of Planar Ferromagnetic Junction Defined by Atomic Force Microscopy, Journal of Magnetics **14-4** (2009)
* Bias-dependent tunneling magnetoresistance of GaAs diodes with ferromagnetic (Ga,Mn)As layers, Journal of the Korean Physical Society **54(4)** (2009)
* Evidence for secondary ferromagnetic phases in the nuclear magnetic resonance spectra of GaMnAs epitaxial films and their nomina effect, Journal of the Korean Physical Society **52-2** (2008)
* Magnetic Anisotropy and ac Susceptibility of (Ga,Mn)As, Journal of the Korean Physical Society, Korean Physical Society **50-3** (2007)
* A study on the validity of the skew scattering model for the anomalous Hall Effect in low-temperature molecular-beam epitaxy gallium manganese arsenide, Journal of the Korean Physical Society **47-2** (2005)

특허 patent

* **[국내]**
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* 그래핀층 상의 유전막을 포함하는 전자소자 및 그래핀층 상의 유전막의 형성 방법, 2014-12 (출원)
* 그래핀의 제조방법, 2014-03 (등록)
* 그래핀층 상의 유전체부 형성 방법, 2013-12 (출원)
* 무촉매 그래핀 제조 방법 및 이를 이용한 반도체 발광소자 제조 방법, 2013-01 (출원)
* 그래핀의 제조방법, 2012-07 (출원)
* 대면적 그래핀 층을 포함하는 전자 장치 및 이의 제조방법, 2008-11 (출원)

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* Magnetoresistance of GaAs p-i-n diode with a GaMnAs layer, 한국자기학회 2006년 동계학술연구발표회 및 자성 및 스핀트로닉스 국제학, 2006-11
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