

NAM-SOO KIM

Associate Professor
Department of Metallurgical and Materials Engineering
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EDUCATION

South Dakota School Of Mines and Technology, Rapid City, SD, 2001 - 2004
Ph.D., Materials Science and Engineering, 2004

Korea University, Seoul, Korea, 1987 – 1995
M.S. Materials Science and Engineering, SsangYong Group Scholarship, 1995
B.S. Material Science and Engineering, 1993

PROFESSIONAL EXPERIENCE

The University of Texas at El Paso, El Paso, TX, US (2010- Present)
Associate Professor, Dept. of Metallurgical and Materials Engineering,

Korea Printed Electronics Research Association, Seoul, Korea (2011- Present)
President & Committee Chair

SeoKyeong University, Seoul, Korea, (2007 – 2010)
Director, World Class University (WCU) Research Group
Director, Environmental and Nanotechnology Research Center
Assistant Professor, Dept. of Biochemical Engineering

South Dakota School of Mines and Technology, Rapid City, SD, US (2001-2010)
Adjunct Professor, Dept. of Materials Science and Engineering, (2008- 2010)
Research Engineer II, Center for Accelerated Applications at the Nanoscale (CAAN), 2007
Teaching/Researching Assistant, 2004

PGM Recovery, Ltd., Gyeonggi-do, Korea, (1998 – 2001)
President & CEO

Ssang-yong Group, Seoul/Daejeon, Korea, (1995 – 1998)
Business Project Manager, Environmental Business Team, Seoul, 1998
Researcher, Ssang-yong Research Center, Daejeon, 1997

HONORS AND AWARDS

Elected as President and Committee Chair for Korea Printed Electronics Research Association, 2011
Texas Government Award, STARS (\$500,000), 2010
SeoKeong University Outstanding Research Award, 2009
Korean Government Project Award, World Class University Project, 2009
SDSM&T Outstanding graduate student, March, 2004
International Precious Metal Institute, Honors for precious metal research, June 2003
Ssang-yong (Korean Company) Group, Full scholarship, Mar.1993 - Feb.1995

1. S. Hwang, E. Reyes, K.Moon, R. C. Rumpf, and *N.S. Kim**, “Thermo-mechanical Characterization of Metal/Polymer Composite Filaments and Printing Parameter Study for Fused Deposition Modeling in the 3D Printing Process”, *J.Elec. materials*, 2014 [doi:10.1007/s11664-014-3425-6]
2. A. Ortega, B. Park, and *N.S. Kim**, “Printability and electrical conductivity of UV curable MWCNT ink” *J.Elec. materials*, 2014 [doi:10.1007/s11664-014-3468-8]
3. Z.Wang, H. Du, S.Wang, S. Zheng, Y.Jhang, S. Hwang, N.S. Kim, and T.Jeong, “Electrochemical Enhanced Oxidative Decomposition of Chromite Ore in Highly Concentrated KOH Solution”, *Mineral Eng.* 2014, vol. 57, pp 16-24
4. J. Hwang, K. Mendoza, K. Jang, S. Hwang and *N.S.Kim**, “Optimization of Reverse Offset Roll to Plate (RO-R2P) Through Contact Angle”, *J. Con. and Sys. Eng.*, Dec.,2013, vol. 1 Iss. 3, pp 67-72
5. K. D. Jang, N. Zuverza, T. E. Jeong, S.S. Kim, and *N. S. Kim**, “Computational Monolayer for Tertiary Nano-Particles Using a Supercomputer”, *J. Elec. Packaging*, 2013, vol. 135/ 011008-1-7, [doi:10.1115/1.4023527]
6. S.I. Hong, A. Duarte, G. Gonzalez, and *N. S. Kim**, “Synthesis of Ag Nanoparticles at the Liquid-Liquid interface of Mist using Ultrasonic Wave”, *J. Elec. Packaging*, 2013 vol. 135/ 011003-1-5, [doi: 10.1115/1.4023528]
7. *N. S. Kim**, S. Luna, J.H. Lee, and T. E. Jeong*, “Statistical Manufacturing Model of Printing Technology”, *J. Elec. Packaging*, 2013, vol. 135 / 011001-1-5, [doi:10.1115/1.4007450]
8. J. Hoffman, S. Hwang, A. Oretga, *N. S. Kim**, and K.S. Moon*, “The Standardization of Printable Matetrials and Direct Writing Systems”, *J. Elec. Packaging*, 2013, vol. 135 / 011009-1-8, [doi: 10.1115/1.4023809]
9. B. Liu, S. Zheng, S. Wang, Y. Zhang, A. Ortega, *N. S. Kim**, K, Han and H. Du, “The Redox Behavior of Vanadium in Alkaline Solutions by Cyclic Voltammerty Method”, *Electrochimica Acta*, 76 (2012) 262-269
10. K. D. Jang, A. Ortega, H. Du and *N. S. Kim**, “Effect of Lithium Ions on Copper Nanoparticle Size, Shape, and Distribution”, *J. Nano. Tech*, vol. 2012 , ID 469834, 6pp, [doi:10.1155/2012/469834]
11. M. H. Oh, *N. S. Kim** and S. M. Kang, “Effect of Conductivity of the Aqueous Solution on the Size of Printable Nanoparticle”, *J. Nano. Tech*, vol. 2012, ID 467812, 4 pp, [doi: 10.1155/2012/467812]
12. J.W. Jeon, M. Kim, L. W. Jang, J. Hoffman, *N.S. Kim** and I. H. Lee, “Effect of Substrate Temperature on Residual Stress of ZnO Thin Films Prepared by Ion Beam Deposition”, *Elec. Mat. Letters*, Vol. 8, pp 27-32, (2012)
13. J. H. Hwang, J. M. Ucol, K.-W. Lee, A. Ortega, *N. S. Kim**, “Shape Modification of Net Shaped CuO and Cu Nano Particles for a Percolation Threshold Using a Chelating Agent”, *Adv. Mat. Res.*, Vols. 399-401, pp 766-773 (2012) (DOI:10.4228/www.scientific.net/AMR.399-401.766)
14. J.W. Jeon, D.W Jeon, T. Sahoo, M.Kim, J.H. Baek, J. Hoffman, *N.S. Kim** and I.H Lee*, “Effect of Annealing Temperature on Optical Band-gap of Amorphous Indium Znic Oxide film”, *J. of Alloys and Comp.* 2011 (Accepted, DOI:10.1016/j.jallcom.2011.08.033)
15. K. D. Jang, Y. K. Jo, S. Y. Hong, *N. S. Kim**, T. E. Jeong, “Parameters Study on Micro-Dispensing Write (MDDW) for High Viscous Materials”, *Kor. Welding and Joining Soc.* Vol. 29, No. 1, pp 33-35, (2011)
16. R. Zhang, S. Ma, Q. Yang, S. Zheng, Y. Zhang, *N. S. Kim** and S. I. Hong, “ Research on NaCaHSiO₄ decomposition in sodium hydroxide solution,” *Hydromet.*, Vol. 108, No. 3-4, pp. 205-213, (2011)
17. S. I. Hong, J. M. Ucol, H. Du, S. Zheng, I. H. Lee and *N. S. Kim**, “ An Analysis of the Urban Mining Market and Technology in the United States,” *Jap. J. Soc. of Mat. Cycl. & waste Mang.*, Vol 5, No. 3 1-5(2011)
18. Y. J. Lee, J. H. Lee, *N. S. Kim**, S. Y. Hong, T. E. Jeong, “Printable Materials and Technologies in Korea-Focused on Ink-jet and Roll to Roll (R2R)”, *Kor. Welding and Joining Soc.*, Vol. 29, No. 1, pp 36-40, (2011)
19. K. Amert, D. H. Oh and *N. S. Kim**, “A Simulation and Experimental Study on Packing on Nano-inks to Attain Better Conductivity”, *J. Appl. Phys.* 108, pp.25-30. (2010).
20. *N. S. Kim** and K. N. Han, “Future Direction of Direct Writing”, *J. Appl. Phys.* 108, pp.1-6. (2010).
21. *N. S. Kim**, S. Y. Hwang, E. Y. Kim and K. N. Han “Synthesis of Copper Nano-ink in Alcohol Media”, *Jap. J. of Appl. Phys.*, Vol.49, No.5, 05EA04, (2010).
22. S. Y. Hwang and *N. S. Kim**, “Synthesis of Direct Printable CdS Nanoparticles for CIGS/CdTe Thin-film Solar Cell”, *Jap. J. of Appl. Phys.*, Vol.49, No.5, 05EA08, (2010).

23. D. H. Oh and *N. S. Kim**, “Computer aided simulation of mesoscale particles mixing for direct printable ink”, *J. of Mech. Sci. and Tech.*, Vol.1, pp.122-126 (2010).
24. *N. S. Kim** and S. Y. Hwang, “Ammonical Separation of Ni from a Spent Fly Ash Leach Liquor”, *Minerals & Metallurgical Processing*, Vol. 27, No.3, pp.154-157, (2010).
25. M. H. Kim, Y. K. Kim, K. N. Han, S. J. Kim, *N. S. Kim*, S. Y. Hong and H. C. Han, “Effect of Activated Carbon and Diatomite on Deodorant Efficiency of Recycled Fly Ash Panel”, *Kor. Soc. of Env. Eng.*, Vol.32, No.6, pp.625-630, (2010)
26. J. H. Lee, M. H. Kim, S. R. Kim and *N. S. Kim*, and H. C. Han, “A Feasibility Study for Recycled Power Plant Fly Ash as a Potential Deodorant Panel-Adsorption Test of Formaldehyde and Toluene”, *J. of Kor. Soc. of Waste Manag.*, Vol.27, No.1, pp.59-64 (2010).

PATENTS

Registered

1. *N. S. Kim*, S. Y. Hwang and H. J. Lee “The fabrication method of activated carbon that use for heavy oil fly ash”, Korea Patent : 10-0996431
2. K. N. Han, *N. S. Kim*, S. M. Kang and T. E. Jeong, “Manufacturing method of nano-ink with low melting point,” Korea Patent : 10-0996650
3. K. N. Han and *N. S. Kim*, “Method of forming wiring patterns using nano-ink comprising metals having low melting point,” patent number : 10-0902037/ U.S.Patent : 12/140,744
4. K. N. Han and *N. S. Kim*, “Recovery of Platinum Group Metals by Solvent Extraction of Sulfates or Bisulfates,” U.S.Patent : #7067090
5. *N. S. Kim*, C. S. Cha, G. S. Jeon, S. R. Kim and J. C. Lee, “Porous Ceramics for Treating Food Waste and Eliminating a Bad Smell” Korea Patent :10-0277565
6. *N. S. Kim*, G. S. Jeon, and H. Y. Lee, “Deodorizing Method and its Apparatus with Optical Catalyst,” Korea Patent:10-0239241
7. *N. S. Kim*, H. Y. Lee, and G. S. Jeon, “Method for Preparing Titanium Oxide Photocatalyst,” Korea Patent:10-0225342
8. J. Yang, H.G. Oh, D.C. Lee, and *N. S. Kim*, “Method and Apparatus of the Regeneration Ceramic Filters Used for Removing Harmful Gas Exhausted from a Oil Vehicles,” Korea Patent:10-0198916
9. *N. S. Kim*, J. Yang, and D. C. Lee, “Manufacture of Ceramic Filters by Sheet Casting, Stacking and Sintering,” Korea Patent:10-0180108
10. J. Yang, *N. S. Kim*, and D.C. Lee, “Method for Preparing Ceramic Filters I,” Korea Patent:10-0180110
11. J. Yang, *N. S. Kim*, G. Y. Jang, and J. H. Jung, “Method for Preparing Porous Ceramic Substrate with a Large Surface Area,” Korea Patent: 10-0166437
12. *N. S. Kim* and J. Yang, “An Aerator Having An Improved Foaming Surface,” Korea Patent:10-0173542
13. *N. S. Kim* and G. C. Yeom, “Filtering Method Having Back-Flushing for Waste Water Treatment and its Apparatus,” Korea Patent: 10-0142996

PEER REVIEWED CONFERENCE PAPERS (RECENT 3Yrs)

1. S. Hong, S. Hwang, Y. Hwang, B. Park, I.Seo and *N. Kim**, “SKU-UTEP STEAM Program: Convergence of Scientific 3D Printing Technology and Artistic Design” Korea Foundation for the Advancement of Science and Creativity, Kyeonggi, Il-san, KINTEX, Dec. 3-4, 2014
2. S. Hwang, S. Hong and *N. Kim**, “Printing Innovative Nano Engineering Technology and Elite Education (PINE-TREE)” Korea Foundation for the Advancement of Science and Creativity, Kyeonggi, Il-san, KINTEX, Dec. 3-4, 2014
3. A. Ortega and *N.S. Kim* “Educational Approach for Printing Nano Engineering (PNE)”, KoPERA 2011, ETRI, Daejeon, Korea, Sep 27, 2011.
4. S.Y Hwang, J. Hoffman and *N.S. Kim* “The Standardization of Printable Materials and Processes”, KoPERA 2011, ETRI, Daejeon, Korea, Sep 27, 2011.
5. K. N. Han and *N. S. Kim*, “Plan for strategic metals recovery and development of nano-metal applications”, World Class University International Conference, Seoul, Korea, May 18, 2010

6. Y. K. Kim, T. E. Jeong, D. H. Oh, N. S. Kim and S. Y. Hong, "Synthesis of Solar Cell Top Connector Using Silver Paste", Korean Society of Mechanical Engineers, 2010 Spring Conference, Jeju Island, Korea, Apr 22-23, 2010

TECHNICAL AFFILIATIONS & PROFESSIONAL ACTIVITIES

President & Committee Chair, Korea Printed Electronics Research Association (KoPERA), 2011-2014
 Co-editor on special session of Printed Electronics, Journal of Nanotechnology, 2012
 Chief Committee, Korea Printing Electronics Association (KOPEA), 2010
 Committee Member and Program Chair of International Conference Flexible and Printing Electronics, 2010
 Program Director on Solar Printable Materials 2009 ICFPE
 Guest Referee of Japanese Journal of Applied Physics, 2009
 Reviewer of Journal of Applied Physics, 2009
 Society of Mining Engineering, (SME/TMS)
 Korea Materials and Metal Society

FUNDED GRANT PROPOSALS

1. "NUE: Printing Innovative Nano Technology Research and Elite Education (PINE TREE), NSF (EEC-1343607), (10/2013 ~ 9/2015). (PI Funded)
 Grand Total/duration: **\$191,240**/2 years
2. "UTEP-SKU Project : Printing Nano Engineering Educational Research Grant (5/26/2011~2/28/2017). (PI Funded)
 Grand Total/duration: **\$2,106,000**/5 years
3. "MET-Functional Deodorization Panel" Project: Korea Ministry of Commerce, Industry and Energy, (11/01/2010~10/31/2012). (PI Funded)
 Grand Total/duration: **\$89,200**/2 years
4. "Network Establishment among Urban Mining Companies", Project: Korea NSF 2010-D003-00) (10/28/2010~5/31/2012). (PI Funded)
 Grand Total/duration: **\$26,000**/1.6 years
5. "Integrated 3D Systems-Structural and Printed Emerging Tech Center-START-UP", Texas ETF Funds, (2010-2012)(PI Funded)
 Grand Total/duration: **\$500,000**/2 years
6. "Pilot Plant for Antivirus Nano Inks for H1N1", Project: US Industrial, (2/15/2010-8/14/2010). (PI Funded)
 Grant Total/Duration: **\$40,000**/ 6 months
7. "WCU(world class university) project: Plan for Strategic Metals Recovery and Development of Nano-Metal Application", Project: r33-2008-000-10004-0, NSF(Korea), (12/1/2008-11/30/2011). (PI Funded)
 Grant Total/Duration: **\$780,000**/ 3 years
8. "Research of Characteristics of Cu Nano Fluids for High Thermal Conductivity", Project: 2008-2-cm11-p-06-3-030, Korea Energy Cons. (11/1/2008-10/30/2013). (PI Funded)
 Grant Total/Duration: **\$150,000**/ 5 years
9. "A Study on Fabrication of Functional Deodorized Panel and Commercialization that Use for Carbonaceous Circulated Materials", Project: 2007-R-RU-11-P-14-3-010-2007, SBIR(Korea) (12/1/2007-11/30/2012). (PI Funded)
 Grant Total/Duration: **\$150,000**/ 5 years
10. "Bonding Processes for 3D Microsystem Packaging", Project: 10890C092983, Seoul Cluster, (8/1/2006-7/30/2011). (Co-PI Funded)
 Grant Total/Duration: **\$750,000**/ 5 years
11. "Development of Stand Alone Type FHC System for Direct Writing System", Project: Industrial , ENBION inc (12/1/2007-11/30/2008). (PI Funded)
 Grant Total/Duration: **\$40,000**/ 1 year
12. "2nd Generation Photovoltaic System", Project: Industrial , DaeYang Metals inc.(Korea) (6/1/2007-12/30/2007). (PI Funded)
 Grant Total/Duration: **\$50,000**/ 6 months