Chiwon Kang

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EDUCATION

May 2009 – present

Graduate Teaching Assistant (Ph.D. scholar) of Mechanical and Materials Engineering, Florida International University, Miami, FL, USA

Research topic: Fabrication and Characterization of CNT, CNT based Nanoelectronics, Development of Nanostructured Materials (CNT, graphene) for Li-Air Battery electrodes

Advisor : Dr. Wonbong Choi

GPA 3.84/4.00

January 2007 – May 2009

M.S. of Materials Engineering, Auburn University, Auburn, AL, USA

Research topic : Lead-free KNN piezoelectric thin films.

Thesis title : Structural and Electrical Characterization of Highly Oriented $(K_xNa_x)NbO_3$ (KNN) Thin Films by Chemical Solution Deposition

Advisor : Dr. Dong-Joo (Daniel) Kim

GPA 3.33/4.00

August 2005 – December 2006

In pursuit of Ph.D. of Materials Science and Engineering, University of Florida, Gainesville, FL, USA

Research topic : Biomaterials

Advisor : Dr. Christopher Batich

GPA 3.09/4.00

March 2001 – February 2003

Master of Science in Ceramic Engineering, Yonsei University, Seoul, South Korea

Research topic : Colloidal ceramics, Electronic devices

Thesis title : Fabrication of Barrier Rib of Plasma Display Panel (PDP) by Transfer Molding of Gelable Slurry

Advisor : Dr. Jooho Moon

GPA 3.69/4.30

March 1999 – February 2001

Bachelor of Science in Ceramic Engineering, Yonsei University, Seoul, South Korea

GPA 3.40/4.30

March 1997 – February 1999

In pursuit of B.S. of Metallurgy and Materials Engineering, Hanyang University, Ansan, South Korea

GPA 3.99/4.50

RESEARCH EXPERIENCE

January 2007 – May 2009

Auburn University, Auburn, AL, USA

Graduate Research Assistant

- Developed lead-free $(K_{0.5}Na_{0.5})NbO_3$ (KNN) piezoelectric thin films for environmentally and biologically benign piezoelectric devices.
- Investigation of Chemical Solution Deposition (CSD) for fabrication of new multicomponent oxide thin films.
- Study of the relationship between process, structure and property in KNN thin film system.

March 2001 – February 2003

Yonsei University, Seoul, South Korea

Graduate Research Assistant

- Participated in the acquisitions and set-up of necessary equipment for the new Nanofunctional Material Laboratory at Yonsei University.
- Fabricated well dispersed gelcasting suspensions by the optimization of the amount of gelation agents and dispersants.
- Improved the casting of complex-shaped and micro-scaled barrier ribs for plasma display panels precisely by increasing the strength of their green body and by surface treatment of the mold for easier mold removal.

TECHNICAL EXPERIENCE & SKILLS

Hands-on experience with thin film device fabrication :

- Chemical solution process : sol-gel processing.
- Physical vapor deposition: sputter deposition.
- Microfabrication : photo lithography (lift-off).

Hands-on experience with fabrication of barrier ribs for plasma display panel

- Fabrication of a well-dispersed gelcasting suspension by the control of dispersants.
- Development of barrier ribs by transfermolding process of a gelable suspension.
- Improvement of the pattern quality of the rib structure by the control of gelation induction time, gel strength and mold removal process.
- Characterization of the densities of green and fired bodies and their mechanical strength.

Hands-on experience with thin film device characterization :

- Electrical characterization of KNN capacitor (P-E hysteresis loop, C-V curve, I-V curve) .

Material characterization :

- Practical experience on XRD, SEM, EDS, Raman spectroscopy, Viscometer, Cantact angle, Archimedes density

JOURNAL PUBLICATIONS

1. S. H. Jee, H. Park, S. H. Kim, J. W. Lee, Y. S. Yoon, C. W. Kang, and D.-J. Kim, "Properties of Hetero-Structured Diode with n-Type ZnO and p-Type NiO," J. Korean Phys. Soc., 53(1) 446-450 (2008)
2. Jooho Moon, Chiwon Kang, and Seughyun Cho, "Microtransfer Molding of Gelcasting Suspensions to Fabricate Barrier Ribs for Plasma Display Panel," *J. Am. Ceram. Soc.*, 86 [11] 1969-72 (2003)

CONFERENCE PRESENTATIONS

1. "Fabrication and characterization of lead-free (K, Na)NbO_3 thin films by chemical solution deposition", ISAF 2008 Conference, February, Santa Fe, New Mexico, USA
2. "Growth and Characterization of Highly Oriented Lead-Free $(K_{0.5}Na_{0.5})NbO_3$ Thin Films by Chemical Solution Deposition", 2007 MRS Fall Meeting, November, Boston, Massachusetts, USA
3. "Growth Mechanism and Raman Spectroscopy Analysis of Solution Derived ZnO Films", 2007 MRS Fall Meeting, November, Boston, Massachusetts, USA
4. "Hydrothermal Synthesis and Characterization of Rare Earth Pyrochlores-based Catalysts for NOx Decomposition", 2001 Spring Meeting of the Korean Ceramic Society, April, Inha University, Incheon, Republic of Korea
5. "Development of Complex-Shaped Rib Barrier Forming Process", 2001 Fall Meeting of the Korean Ceramic Society, October, Korea Advanced Institute of Science and Technology, Dae-Jeon, Republic of Korea
6. "Fabrication of Barrier Rib of Plasma Display Panel (PDP) by Transfer Casting of Gelable

Slurry", 2002 Fall Meeting of the Korean Ceramic Society, October, Sunchon University, Sunchon, Republic of Korea

AWARDS

1. Graduate Teaching Assistantship Award from Florida International University Graduate School, 05/2009
2. International Graduate Assistantship Award from Auburn University Graduate School, 11/2006
3. Graduate Research Assistantship Award from Yonsei University Graduate School, 03/2001
4. Second prize in a poster contest held by the sponsorship of Research Institute of Advanced Materials at Yonsei University, 06/2001

SCHOLARSHIPS

1. One full and two partial academic scholarships at Hanyang University, 09/1997 - 02/1999