

# Research Publication

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Digital Nanolocomotion Center  
NanoSensuating Systems Laboratory  
Department of Bio and Brain Engineering  
Korea Advanced Institute of Science and Technology

## 1. Journal Papers

### 1-1. International Journal Papers

- [IJ50] Sunghwan Chang and Young-Ho Cho, "A Continuous Size-dependent Particle Separator Using a Negative Dielectrophoretic Virtual Pillar Array," Accepted for publication in *Lab on a Chip* (July 3, 2008)
- [IJ49] Taeyoon Kim, and Young-Ho Cho, "A Particle Flow Velocity Profiler Using In-channel Electrodes with Unevenly Divided Interelectrode Gaps," *Journal of Microelectromechanical Systems*, Vol.17, No.3 (June 2008) pp.582-589.
- [IJ48] Sechan Youn, Dong Woo Lee, and Young-Ho Cho, "Cell-Deformability-Monitoring Chips Based on Strain-Dependent Cell-Lysis Rates," *Journal of Microelectromechanical Systems*, Vol.17, No.2 (April 2008) pp.302-308.
- [IJ47] Lars E. Schmidt, Soyeon Yi, Young-Hyun Jin, Yves Leterrier, Young-Ho Cho, and Jan-Anders E. Månson, "Acrylated Hyperbranched Polymer Photoresist for Ultra-Thick and Low-Stress High Aspect Ratio Micropatterns," *Journal of Micromechanics and Microengineering*, Vol.18 (March 11, 2008) pp.1-8.
- [IJ46] Dong Woo Lee, Soyeon Yi, and Young-Ho Cho, "A Flow Rate Independent Cell Concentration Measurement Chip Using Electrical Cell Counters Across a Fixed Control Volume," *Journal of Microelectromechanical Systems*, Vol.17, No.1 (Feb. 2008) pp.139-146.

- [IJ45] K.B. Lee, Liwei Lin, and Young-Ho Cho, "A Closed-form Approach for Frequency Tunable Comb Resonators with Curved Finger Contour," *Sensors and Actuators : A*, Vol.A141, Issue 2 (Feb. 15, 2008) pp.523-529.
- [IJ44] Young-Ho Cho, Sechan Youn, and Dong Woo Lee, "Bio-Inspired Cell Concentration and Deformability Monitoring Chips," *Journal of Nanoscience and Nanotechnology*, Vol.7, No.11 (Nov. 2007) pp.4214-4219.
- [IJ43] Won Chul Lee, Young-Ho Cho, and A.P. Pisano "Nanomechanical Protein Concentration Detector Using a Nanogap Squeezing Actuator With Compensated Displacement Monitoring Electrodes," *Journal of Microelectromechanical Systems*, Vol.16, No.4 (Aug. 2007) pp.802-808.
- [IJ42] Dong Woo Lee, and Young-Ho Cho, "A Continuous Electrical Cell Lysis Device Using a Low DC Voltage for a Cell Transport and Rupture," *Sensors and Actuators : B*, Vol.B124, Issue 1 (June 10, 2007) pp.84-89.
- [IJ41] Won Han, Won Chul Lee and Young-Ho Cho, "High-Accuracy Digital-to-Analog Actuators Using Load Springs Compensating Fabrication Errors," *Journal of Microelectromechanical Systems*, Vol.16, No.3 (June, 2007) pp.528-536.
- [IJ40] Young-Hyun Jin, Young-Ho Cho, Lars E. Schmidt, Yves Leterrier, and Jan-Anders E. Månson, "A Fast Low-temperature Micromolding Process for Hydrophilic Microfluidic Devices Using UV-curable Acrylated Hyperbranched Polymers," *Journal of Micromechanics and Microengineering*, Vol.17 (May 4, 2007) pp.1147-1153.
- [IJ39] Y.-H. Lee, and Young-Ho Cho, "Frequency-Dependent Rectification of the Bidirectionally Oscillating Dynamic Flow in Microdiffusers," *Sensors and Materials*, Vol.19, No.3 (March 27, 2007) pp.133-147.
- [IJ38] J.-C. Ryu, and Young-Ho Cho, "Transverse Electromagnetic Microactuators Using Electroplated Planar Coil Driven by Symmetric Twin Magnets," *Sensors and Materials*, Vol.19, No.2 (Feb. 21, 2007) pp.107-121.
- [IJ37] Won Chul Lee, and Young-Ho Cho, "Bio-inspired Digital Nanoactuators for Photon and Biomaterial Manipulation," *Current Applied Physics*, Vol.7, Issue 2 (Feb. 2007) pp.139-146.
- [IJ36] Dong Woo Lee, Soyeon Yi, and Young-Ho Cho, "Red Blood Cell Concentration Measurement Method Using Two Cell Counters," *Sensors and Materials*, Vol.18, No.8 (Nov. 24, 2006) pp.419-432.

- [IJ35] E.-S. Kim, K.-H. Han, Young-Ho Cho, and M.-U. Kim, "Experimental Study on Squeeze Film Damping of Perforated Micromechanical Structures Oscillating Perpendicular to the Substrate," *Sensors and Materials*, Vol.18, No.7 (Sep. 29, 2006) pp.381-393.
- [IJ34] Il Doh, and Young-Ho Cho, "Design and Evaluation for Mechanical Strength of an Anodically Bonded Pressurized Cavity Array for Wafer-Level MEMS Packaging," *Sensors and Materials*, Vol.18, No.5 (July 19, 2006) pp.231-240.
- [IJ33] Dong Woo Lee, Soyeon Yi, and Young-Ho Cho, "Particle Concentration Sensor Using Control Volume Between Double Electrical Sensing Zones," *Current Applied Physics*, Vol. 6, Supplement 1 (Aug. 2006) pp.e232-e236.
- [IJ32] Won Chul Lee, and Young-Ho Cho, "Nanomechanical Protein Detectors Based on the Mechanical Property Measured by Nano-gap Actuators," *Current Applied Physics*, Vol. 6, Supplement 1 (Aug. 2006) pp.e76-e80.
- [IJ31] Soyeon Yi, and Young-Ho Cho, "Self-focusing DNA Separation Chips Using Micropillar Array With Nonuniformly Distributed Asymmetric Electric Fields," *Current Applied Physics*, Vol. 6, Supplement 1 (Aug. 2006) pp.e72-e75.
- [IJ30] S.-H. Yoon, and Young-Ho Cho, "High-Precision Digital Microflow Controllers Using Fluidic Digital-to-Analog Converters Composed of Binary-Weighted Flow Resistors," *Journal of Microelectromechanical Systems*, Vol.15, No.4 (Aug. 2006) pp.967-975.
- [IJ29] S.-A. Kim, Young Ho Seo, Young-Ho Cho, G.H. Kim, and J.U. Bu, "Fabrication and Characterization of A Low-Temperature Hermetic MEMS Packaging Bonded by A Closed Loop AuSn Solder-Line," *Sensors and Materials*, Vol. 18, No.4 (May 2006) pp.199-213.
- [IJ28] Tae Goo Kang, and Young-Ho Cho, "A Four-Bit Digital Microinjector Using Microheater Array for Adjusting Ejected Droplet Volume," *Journal of Microelectromechanical Systems*, Vol.14, No.5 (Oct. 2005) pp.1031-1038.
- [IJ27] C.Y. Lee, Young-Ho Cho, and K.R. Lee, "Self-Diagnostic High-Density Silicon Microprobe Arrays Fabricated by the Corner Compensated Anisotropic Etching of (110) Silicon Wafers," *Sensors and Actuators*, Vol.A122 (May 2005) pp.345-351.
- [IJ26] Sunghwan Chang, and Young-Ho Cho, "Static Micromixers Using Alternating Whirls and Lamination," *Journal of Micromechanics and Microengineering*, Vol.15 (May 2005) pp.1397-1405.

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- [IJ24] Soyeon Yi, K.-S. Seo, and Young-Ho Cho, "A DNA Trapping And Extraction Microchip Using Periodically Crossed Electrophoresis in a Micropillar Array," *Sensors and Actuators*, Vol.A120 (March 2005) pp.429-436.
- [IJ23] Young-Hyun Jin, K.-S. Seo, Young-Ho Cho, S.-S. Lee, K.-C. Song, and J.-U. Bu, "An Optical Microswitch Chip Integrated With Silicon Waveguides and Touch-down Electrostatic Micromirrors," *Journal of Micromechanics and Microengineering*, Vol.14, No.12 (Dec. 2004) pp.1674-1681.
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- [IJ16] Tae Goo Kang, S.W. Kim, and Young-Ho Cho, "High-impulse, low-power, digital microthrusters using low boiling temperature liquid propellant with high viscosity fluid plug," *Sensors and Actuators*, Vol.A97-98 (April 2002) pp.659-664.

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- [IJ5] J.S. Go, Young-Ho Cho, B.M. Kwak, and K. Park, "Snapping Microswitches with Adjustable Acceleration Threshold," *Sensors and Actuators*, Vol.A54 (June 1996) pp.579-583.
- [IJ4] K.H. Kim, J.S. Ko, Young-Ho Cho, K. Lee, B.M. Kwak and K. Park, "A Skew-symmetric Cantilever Accelerometer for Automotive Airbag Applications," *Sensors and Actuators*, Vol.A50 (Aug. 1995) pp.121-126.

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**1-2. Domestic Journal Papers**

[DJ51] , , “ 가 (2008. 9. 30)

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[DJ49] , , “ ,” A , 32 , 10 (2008. 10) pp.831-835.

[DJ48] , , , “ ,” A , 32 , 10 (2008. 10) pp.823-830.

[DJ47] , , , “ ,” A , 32 , 4 (2008. 4) pp. 297-302.

[DJ46] , , , “ ,” A , 32 , 1 (2008. 1) pp. 1-6.

[DJ45] , , , , “ ,” A , 31 , 11 (2007. 11) pp. 1077-1082.

[DJ44] , , “ ,” A , 31 , 10 (2007. 10) pp. 981-985.

[DJ43] , , , “ 가 ,” A , 30 , 4 (2006. 4) pp. 373-378.

[DJ42] , , , , , “ ,” 55C , 3 (2006. 3) pp. 149-155.

- [DJ41] , , , “  
,” A , 29 , 12 (2005. 12) pp. 1615-1620.
- [DJ40] , , “4-bit  
,” A , 29 , 3 (2005. 3) pp. 418-424.
- [DJ39] , , , “  
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- [DJ38] , , “ ,”  
A , 29 , 1 (2005) pp. 53-58.
- [DJ37] , , “  
,” B ,  
28 , 12 (2004) pp. 1549-1556.
- [DJ36] , , “ ,”  
A , 28 , 12 (2004) pp. 1997-2003.
- [DJ35] , , , “  
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28 , 12 (2004) pp. 1990-1996.
- [DJ34] , , , “ 가  
,” A , 28 , 12 (2004) pp. 1923-1930.
- [DJ33] , , , “ DNA ,”  
A , 28 , 8 (2004) pp. 1135-1139.
- [DJ32] , , , , “ AuSn  
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(2004) pp. 435-442.
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가,” 53C , 4  
(2004. 4) pp. 218-224.



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- [DJ27] , , , “  
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874.
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가 가,”  
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- [DJ25] , , “ -  
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6 (2002) pp. 1187-1193.
- [DJ24] , , , “  
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pp. 291-299.
- [DJ23] , , , , , “  
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(2001. 12) pp. 639-648.
- [DJ22] , , , “ Creeping  
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- [DJ21] , , “  
가 ,” , 50C , 7 (2001. 7) pp. 346~350.

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- [DJ19] , , , , “ , ” , 50C , 5 (2001. 5) pp.243~248.
- [DJ18] , , , “ 가 가 , 가 , ” , 25A , 3 (2001. 1) pp.529 ~ 536.
- [DJ17] , , “ 가 , ” , 25A , 3 (2001. 1) pp. 520 ~ 528.
- [DJ16] , , “ , ” , 25A , 3 (2001) pp.424 ~ 433.
- [DJ15] , , “ 가, ” , 25A , 1 (2001) pp.11 ~ 15.
- [DJ14] , , , “ , ” , 25A , 1 (2001) pp.16 ~ 24.
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- [DJ12] , , , “ , ” , 49C , 1 (2000. 1) pp.64-69.
- [DJ11] , , , , “ 가 , ” , 7 , 1 (1999) pp.155-160.
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- [DJ8] , , , , , , “ 가 , ” , 4 , 5 (1996) pp.9-15.
- [DJ7] , “ , ” , 20 , 5 (1996) pp.1363-1371.
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- [DJ5] , , , , “ , ” , 20A , 2 (1996) pp.481-487.
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- [DJ3] , “ , ” , 19 , 12 (1995) pp.3130-3140.
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## 2. Conference Papers

### 2-1. International Conference Papers

- [IC165] Il Doh, and Young-Ho Cho, "Passive Autonomous Biofluidic Regulators," *Proc. 6th Inter. Nanotech Symposium & Exhibition in Korea 2008 (NANO KOREA 2008)*, KINTEX, Ilsan, Korea (Aug. 27-29, 2008) CD.PND013.
- [IC164] Hyunjung Chu, Il Doh, and Young-Ho Cho, "Three-dimensional Positive- Delectrophoretic Bioparticle Focusing Chips," *Proc. 6th Inter. Nanotech Symposium & Exhibition in Korea 2008 (NANO KOREA 2008)*, KINTEX, Ilsan, Korea (Aug. 27-29, 2008) CD.PND012.
- [IC163] Sunghwan Chang, and Young-Ho Cho, "Clog-free Blood Cell Separation Using a Virtual Pillar Array," *Proc. 6th Inter. Nanotech Symposium & Exhibition in Korea 2008 (NANO KOREA 2008)*, KINTEX, Ilsan, Korea (Aug. 27-29, 2008) CD.PND010.
- [IC162] Dong Woo Lee, and Young-Ho Cho, "A Ternary Microfluidic Multiplexer Using Different Threshold Pressure Valves," *Proc. 6th Inter. Nanotech Symposium & Exhibition in Korea 2008 (NANO KOREA 2008)*, KINTEX, Ilsan, Korea (Aug. 27-29, 2008) CD.PND009.
- [IC161] Young-Ho Cho, "Country/Region Review : Korea," *Proc. 14th World Micromachine Summit*, Daejeon, Korea (April 30 - May 3, 2008)
- [IC160] Young-Ho Cho, "Crash Sensor Development Issues in Automotive Electronic Airbag Systems for Passenger Protection," *Proc. 2008 IEEE Inter. Solid-State Circuits Conference (ISSCC 2008)*, San Francisco, U.S.A. (Feb. 13-17, 2008)
- [IC159] H.J. Chu, Il Doh, and Young-Ho Cho, "A Two-Dimensional Particle Focusing Channel Using the Positive Dielectrophoresis (pDEP) Guided by a Dielectric Structure Between Two Planar Electrodes," *Proc. 21st IEEE Inter. Conf. on Micro Electro Mechanical Systems (MEMS 2008)*, Tucson, Arizona, U.S.A. (Jan. 13-17, 2008) pp.622-625.
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- [IC154] Taeyoon Kim, and Young-Ho Cho, "An Electrical Particle Velocity Profiler Using Three Electrode Lines with Unevenly Divided Inter-electrode Gaps," *Proc. 5th Inter. Nanotech Symposium & Exhibition in Korea 2007 (NANO KOREA 2007)*, KINTEX, Ilsan, Korea (Aug. 29-31, 2007) CD.PPH020.
- [IC153] Yun Jung Heo, Taeyoon Kim, and Young-Ho Cho, "Haircell-inspired Active Micromechanical Motion Amplifiers Using Variable Stiffness Springs," *Proc. 5th Inter. Nanotech Symposium & Exhibition in Korea 2007 (NANO KOREA 2007)*, KINTEX, Ilsan, Korea (Aug. 29-31, 2007) CD.PPH010.
- [IC152] Won Han, and Young-Ho Cho, "Nano-Precision Digital-to-Analog Variable Capacitor Using Parallel Digital Actuator Array," *Proc. 5th Inter. Nanotech Symposium & Exhibition in Korea 2007 (NANO KOREA 2007)*, KINTEX, Ilsan, Korea (Aug. 29-31, 2007) CD.PEL002.
- [IC151] Mun Cheol Kim, Il Doh, and Young-Ho Cho, "High-voltage Liquid-electrolyte Microbatteries Inspired from Electric Eels," *Proc. 5th Inter. Nanotech Symposium & Exhibition in Korea 2007 (NANO KOREA 2007)*, KINTEX, Ilsan, Korea (Aug. 29-31, 2007) CD.PCH003.
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- [IC147] Won Han, and Young-Ho Cho, "High-Accuracy Digital-to-Analog Actuators Using Parallel Spring Array," *Proc. IEEE/LEOS Inter. Conf. on Optical MEMS and Nanophotonics (Optical MEMS 2007)*, Hualien, Taiwan (Aug. 12-16, 2007) pp.53-54.
- [IC146] Won Han, and Young-Ho Cho, "Muscle-Inspired Micromechanical Digital-to-Analog Variable Capacitors Using Parallel Digital Actuator Array," *Proc. IEEE Inter. Conf. on Information Acquisition (ICIA 2007)*, Jeju Island, Korea (July 9-11, 2007) pp.221-226.
- [IC145] Yun Jung Heo, Won Chul Lee, Taeyoon Kim, and Young-Ho Cho, "Haircell-inspired Micromechanical Active Amplifiers Using Variable Stiffness Springs," *Proc. IEEE Inter. Conf. on Information Acquisition (ICIA 2007)*, Jeju Island, Korea (July 9-11, 2007) pp.216-220.
- [IC144] Young-Ho Cho, "Bio-Inspired Sensors for Cell Concentration and Deformability Monitoring," *Proc. IEEE Inter. Conf. on Information Acquisition (ICIA 2007)*, Jeju Island, Korea (July 9-11, 2007)
- [IC143] Won Han, Won Chul Lee, and Young-Ho Cho, "High-Accuracy Digital-to-Analog Actuators Using Load Spring Compensating Fabrication Errors," *Proc. 14th Inter. Conf. on Solid-State Sensors, Actuators and Microsystems (Transducers '07)*, Lyon, France (June 10-14, 2007) pp.2227-2230.
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- [IC141] Taeyoon Kim, and Young-Ho Cho, "An Electrical Particle Velocity Profiler for In-Channel Clogging Detection and Flow Pattern Characterization," *Proc. 14th Inter. Conf. on Solid-State Sensors, Actuators and Microsystems (Transducers '07)*, Lyon, France (June 10-14, 2007) pp.775-778.
- [IC140] Young-Ho Cho, "Micro/Nano Technology in Korea," *Proc. 13th World Micromachine Summit*, Venice, Italy (April 25-28, 2007)

- [IC139] Won Han, and Young-Ho Cho, "High-Precision Micromechanical Tunable Capacitors Using Parallel-Interconnected Digital Actuators," *Proc. 20th IEEE Inter. Conf. on Micro Electro Mechanical Systems (MEMS 2007)*, Kobe, Japan (Jan. 21-25, 2007) pp.815-818.
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- [IC137] Taeyoon Kim, Dong Woo Lee, and Young-Ho Cho, "In-channel Particle Position and Velocity Detectors Based on Particle Transit Time across Uneven Inter-gap Electrodes," *Proc. 20th IEEE Inter. Conf. on Micro Electro Mechanical Systems (MEMS 2007)*, Kobe, Japan (Jan. 21-25, 2007) pp.485-488.
- [IC136] Sunghwan Chang, and Young-Ho Cho, "A Continuous Multi-size Particle Separator using Negative Dielectrophoretic Virtual Pillars Induced by a Planar Spot Electrode Array," *Proc. 20th IEEE Inter. Conf. on Micro Electro Mechanical Systems (MEMS 2007)*, Kobe, Japan (Jan. 21-25, 2007) pp.19-22.
- [IC135] Young-Ho Cho, Sechan Youn, and Dong Woo Lee, "Bio-Inspired Cell Concentration and Deformability Monitoring Chips," *Proc. Inter. Conf. on Nano Science and Nano Technology (GJ-NST 2006)*, Gwangju Nanotechnology Integration Center Korea Institute of Industrial Technology, Gwangju, Korea (Dec. 7-8, 2006) P.22.
- [IC134] Yun Jung Heo, Won Chul Lee, and Young-Ho Cho, "Bio-inspired Micromechanical Energy Amplifiers Using Variable Stiffness Springs," *Tech. Dig. The Sixth Inter. Workshop on Micro and Nanotechnology for Power Generation and Energy Conversion Applications (PowerMEMS 2006)*, Berkeley, California, U.S.A. (Nov. 29-Dec.1, 2006) pp.283-286.
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- [ID2] *The 2nd Korea-Switzerland Joint Symposium on New Materials and Process Issues in MEMS and Nano-Technologies*, "New Materials and Process Issues in MEMS Technologies," Ecole Polytechnique Fédérale de Lausanne EPFL, Lausanne, Switzerland (June 18-19, 2001) p.74.
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