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Abstracts of ISNIT & ISIUS Joint Conference

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International Convention Center Jeju

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13:20~13:40	ISNIT-63 T.L. Jin, N.S. Goo, S.C. Woo, H.C. Park (Konkuk U., Korea) "Use of a Digital Image Correlation Technique for Measuring Material Property of a Beetle Wing"
13:40~14:00	ISNIT-20 W.C. Nam, T.W. Seo, B.W. Kim, D.S. Jeon, K.J. Cho, J.W. Kim(Seoul National U., Korea) "Kinematic Analysis and Experimental Verification on the Locomotion of Gecko"
14:00~14:20	ISNIT-21 Z. Wang, J.T. Wang, Z. Dai, A.H. Ji(NUAA, China) "The measurement on 3-dimensional reaction force of gecko crawling on ceiling"
14:20~14:40	ISNIT-30 W. Wang, Z. Dai, L. Cai, H. Tan(NUAA, China), J.R. Sun(NUAA, Peking U., China.) "Modulation on gecko's locomotion: enlightenment from the study of locomotion in the lamprey"
14:40~15:00	Break
	Session #4: *Biomimetic Sensors & Actuators* (Prof. Dongwon Lee and Prof. Jonghwan Seo)
15:00~15:20	ISNIT-04 A. Muhammad, H.C. Park, D.Y. Hwang, D. Byun, N.S. Goo (Konkuk U., Korea) "Improvement and Simulation of Artificial Foldable Wing Model by Mimicking the Unfolding/Folding Mechanism of a Beetle Hind Wing"
15:20~15:40	ISNIT-26 C.Y. Han, C.S. Park, D.W. Lee (Chonnam National U., Korea) "Micromachined high sensitive liquid flow sensor using a carbon fiber as a piezoresistor"
15:40~16:00	ISNIT-29 S.M. Cho, D.W. Lee (Chonnam National U., Korea) "Capturing tools based on IPMC for biomedical applications"
16:00~16:20	ISNIT-43 Ai Hong Ji, Hoon Cheol Park, Quoc Viet Nguyen, Jang Woo Lee, Young Tai Yoo (Konkuk U., Korea) "Verification of Beam Models for Ionic Polymer Metal Composite Actuator"
16:20~16:40	ISNIT-62 S.H. Kim, D.G. Cho, T.W. Kim, J.C. Choe, J.B. Choi (Sungkyunkwan U., korea.) "Learning Sustainable Design Tip for natural ventilation and thermoregulation from Animal Architecture"
16:40~18:00	**Poster Session for ISIUS** (Paper list are attached at the end of this program)
18:20~20:00	**Banquet & Awarding** (JCC)

**** Each oral presentation lasts 20 minutes. One session includes 5 papers.***

Time	June 19, 2009
09:00~12:00	Committee meeting for ISNIT & ISIUS (Hotel Hanna)

[ISNIT-29]

Capturing tools based on IPMC for biomedical applications

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Keywords: IPMC, SU-8, actuator, micro-robot, CTO

This paper describes the fabrication and characteristics of ionic polymer metal composite(IPMC) actuator and its application to the particle capturing tool. The capturing part was consisted of six IPMC actuators combined with SU-8 structures. Each IPMC actuator had 2mm in width and 8mm in length. Basic structure and operation principle were very similar to a jellyfish. To use in aqueous environments, all the surface of each IPMC driving parts was coated with a photosensitive biocompatible polymer which also prevents undesirable bubble generation during operation. Various methods were employed for the fabrication of IPMC actuators. Performance improvement of IPMC actuator was achieved by the surface treatment using O_2 plasma. Basic characteristics of the proposed capturing tool were evaluated for further biomedical applications.