

IS-EMD 2008

(8th International Session on Electro-Mechanical Devices)

Tohoku Bunka Gakuen University, Sendai, Japan

November 15 (Sat.) - 16 (Sun.), 2008

Sat, Nov 15 AM

09:00 - 10:20 Chair: Makoto Hasegawa

(1) Degradation Phenomenon of Electrical Contacts by 3-D Oscillating Mechanism -- Basal characteristics of 3-D oscillating mechanism --

Shin-ichi Wada, Keiji Koshida, Taketo Sonoda, Hiroto Minegishi, Yukiharu Kobayashi, Mitsuo Kikuchi, Hiroaki Kubota (TMC), Koichiro Sawa (Keio)

(2) Vibration Characteristics Analysis of Contact System of Hermetically Sealed Electromagnetic Relay Subjected to Random Vibration

Guofu Zhai, Yinghua Chen, Wanbin Ren, Yunzhi Kang (Harbin Inst. Tech.)

(3) "3-D Graphic Image Vibration Analysis of Printed Circuit Board by Using Holography

Kubota Hiromichi, Taniguti Masanari, Suzuki Shosuke, Takagi tasuku (Tohoku Bunka Gakuen Univ.)

(4) The effect of external vibrations on the characteristics of the clapper relay

Wanbin Ren, Yunzhi Kang, Yinghua Chen (Harbin Inst. Tech.)

----- Break -----

10:40 – 12:20 Chair: Hiroyuki Ishida

(5) Research on Dynamic Characteristics Testing and Analyzing System of Electromagnetic Relay

Xuerong Ye, Huimin Liang, Jie Deng, Guofu Zhai (Harbin Inst. Tech.)

(6) Improvement in parameters of older construction power contactors by modernization of their drivers

Piotr Borkowski (Tech. Univ. Lodz), Grzegorz Drygala (ABB Poland) (*read by Makoto Hasegawa*)

(7) Overvoltage protection in power systems of electric traction 3 kV DC with energy-consuming systems

Grzegorz Drygala (ABB Poland), Piotr Borkowski (Tech. Univ. Lodz) (*read by Makoto Hasegawa*)

(8) A Study on Optimization of Electromagnetic Relay's Reaction Torque Characteristic Based on Adjusted Parameters

Guofu Zhai, Qiya Wang, Wanbin Ren (Harbin Inst. Tech.)

(9) The Inverse Design Method of Electromagnetic Relay Reaction System

Guofu Zhai, Weiwei Fan, Wenyang Yang (Harbin Inst. Tech.)

----- Lunch -----

Sat, Nov 15 PM

13:20 – 14:40 Chair: Junya Sekikawa

(10) An sliding scar analysis of composite materials containing solid lubricants for sliding contacts by AFM

Yoshitada Watanabe, Masaomi Arai (Kogakuin Univ.)

(11) Study on A Novel Method of Accelerated Life Test for Relay Reliability

Shujuan Wang, Qiong Yu, Li Ren (Harbin Inst. Tech.)

(12) Electric Properties and Surface Conditions of Tin Plated Contact with Load

Shinya Nakamura, Yasushi Saitoh, Terutaka Tamai, Kazuo Iida (Mie Univ.), Yasuhiro Hattori (AN Ltd.)

(13) Study of Fretting Corrosion in Early Stage

Naoyuki Sato, Yasushi Saitoh, Terutaka Tamai, Kazuo Iida (Mie Univ.), Tetsuya Ito, Yasuhiro Hattori (AN Tech)

----- Break -----

15:00 – 16:00 Chair: Kiyoshi Yoshida

(14) Contact Mechanisms and Contact Resistance Characteristics of Solid Tin and Plated Tin Contacts.

-- Separation of crystal grains of tin plated and its effect on contact resistance --

Terutaka Tamai, Sigeru Sawada (Mie Univ.), Yasuhiro Hattori (AutoNetworks)

(15) Research on Auto-detection Technology of Remainder Particles for Aerospace Relay in Particle Impact Noise Detection

Shicheng Wang, Guofu Zhai, Shujuan Wang (Harbin Inst. Tech.)

(16) Low Force Electrical Switching Using Gold Coated Vertically Aligned Multi-Walled Carbon Nanotubes Surfaces

E. M. Yunus, J. W. McBride, S. M. Spearing (Univ Southampton)

(17) ~~Simulation of the Interruption Process of MCCB with Double Repulsive Contacts (Cancelled)~~

~~Liang Ji, Degui Chen, Yingyi Liu, Xingwen Li (Xi'an Jiaotong Univ.)~~

(18) ~~Simulation and Analysis for a Permanent Contactor with and without Current feedback System (Cancelled)~~

~~Degui Chen, Yingyi Liu, Liang Ji, Chunping Niu (Xi'an Jiaotong Univ.)~~

----- Break -----

17:00 – 18:00 Chair: John W. McBride

(19) New Method to Model the Equivalent Circuit of the Pulse Generator in EFT/B Test

Xiaoshe Zhai, Yingsan Geng, Jianhua Wang, Zhengxiang Song, Degui Chen (Xi'an Jiaotong Univ.)

(20) Computation of Electromagnetic Field Distribution in a Cross-Section of Connector

Jarno Marttila, Yu-ichi Hayashi (Tohoku Univ.), Yoshiki Kayano (Akita Univ.), Hideaki Sone (Tohoku Univ.), Hiroshi Inoue (Akita Univ.)

(21) The Numerical Thermal Analysis for Electromechanical Relay

Li Zhenbiao, Zheng Bicheng, He Zhengjie (Huazhong Univ. Sci. Tech.), Makoto Hasegawa (Chitose Inst. Sci. Tech.)

(22) Research on Leakage Permeance Calculation of Bar Permanent Magnet in Open Magnetic Circuit

Huimin Liang, Hao Cui, Xuerong Ye, Guofu Zhai (Harbin Inst. Tech.)

(23) The effect of Coil on Combined Three-subsection Permanent Magnet in Close Magnetic Circuit Model

Huimin Liang, Jun Xu, Xuerong Ye, Sinan Li, Guofu Zhai (Harbin Inst. Tech.)

----- Banquet -----

Sun, Nov 16 AM

09:00 – ~~10:20~~10:00 Chair: Wanbin Ren

(24) Prediction of resistance of electric contact with plated layer (1) -- Theoretical analyses --

Shigeru Sawada, Kaori Shimizu, Yasuhiro Hattori (AN-Tech), Terutaka Tamai (Mie Univ.)

(25) Prediction of resistance of electrical contact with plated layer(2) -- Contact area by FEM analysis --

Kaori Shimizu (AN-Tech), Shigeki Shimada (SEI), Shigeru Sawada, Yasuhiro Hattori (AN-Tech)

(26) The Research of Liquid Metal Current Limiter

Yiyang Liu, Yi Wu, Mingzhe Rong, Hong Liu, Chenxi Pan, Shijie Yu (Xi'an Jiaotong Univ.)

(27) ~~An Innovation of Particulate Reinforced Alumina and Acrylic Rubber Composite Materials (Cancelled)~~

~~Nuchnapa Tangboriboon, Piraya Wongpinthong, Nattapet Uttanawanit, Mean Longthong (Kasetsart Univ.)~~

----- Break -----

~~10:40 – 12:00~~10:20 – 11:40 Chair: Yiyang Liu

(28) Intermodulation caused by Surface Mount-Device and Defected Connection

Ken-ichi Ohnishi, Nobuhiro Kuga (Yokohama Nat'l Univ.)

(29) A Consideration for Duplexer Design in Connection Inspection using Passive Intermodulation (*Oral presentation only*)

Takeo Nomura, Nobuhiro Kuga (Yokohama Nat'l Univ.)

(30) Optimization Design for High Frequency Relay Based on FDTD Method and Equivalent Circuit Method

Guofu Zhai, Bing Chu, Wanbin Ren (Harbin Inst. Tech.)

(31) Pulse Response Characteristic of Connector Contact Failure on a Coaxial Cable

Kouhei Ohmura, Yu-ichi Hayashi, Hideaki Sone (Tohoku Univ.), Jun Fan (Missouri Univ. Sci. Tech.)

----- Lunch -----

Sun, Nov 16 PM

13:00 – 14:20 Chair: Yasuhiro Hattori

(32) A Measurement on Contact Voltage and Shape of Bridge at Low Speed Breaking Contacts

Kazuaki Miyanaga, Yoshiki Kayano (Akita Univ.), Tasuku Takagi (Em. Prof. Tohoku University), Hiroshi Inoue (Akita Univ.)

(33) Electric Measurement of Melting Phenomena for Breaking Relay Contacts

Noboru Wakatsuki, Nobuo Takatsu, Masahiro Oikawa (Ishinomaki Senshu Univ.)

(34) Analytical Model of Melting Phenomena for Breaking Relay Contacts

Noboru Wakatsuki, Nobuo Takatsu, Toshiteru Maeda, Takayuki Kudou (Ishinomaki Senshu Univ.)

(35) The Effect of Power Supply Voltage on Arcing Duration of Relays

Li Zhenbiao, Zhang Huan, Liang Panwang (Huazhong Univ. Sci. Tech.), Makoto Hasegawa (Chitose Inst. Sci. Tech.)

----- Break -----

14:40 – ~~15:40~~15:20 Chair: Sigeru Sawada

(36) Investigation on Arc Characteristics under Axial and

Transverse Magnetic Fields

Guofu Zhai, Xue Zhou, Wenying Yang (Harbin Inst. Tech.)

(37) ~~Preliminary study of the magnetic method used to measure air arc behavior (Cancelled)~~

~~Xingwen Li, Haoyong Song, Degui Chen (Xi'an Jiaotong Univ.)~~

(38) Rotational Motion of Break Arcs Driven by Radial Magnetic Field in a DC Resistive Circuit

Junya Sekikawa (Shizuoka Univ.), Takayoshi Kubono (Prof. Em., Shizuoka Univ.)

----- Break -----

~~16:00 – 17:20~~15:40 – 17:00 Chair: Nobuhiro Kuga

(39) Break Arc Duration at Carbon Contacts in an Inductive Circuit -- Discussion on Carbon Arc V-I Characteristics --

Keiichi Suhara (TNCT)

(40) Study on Suppression of Radiated Electromagnetic Noise Generated by Electric Arc in Hybrid Relay

Guofu Zhai, Wenying Yang, Xianbin Bian (Harbin Inst. Tech.)

(41) A Study on Relationship between Opening Velocity and Short-Time Arc for Silver Contact

Shingo Hanawa, Kazuaki Miyanaga, Yoshiki Kayano, Hiroshi Inoue (Akita Univ.)

(42) Commutation phenomena of DC motor in ethanol fuel

Koichiro Sawa, Akihiro Nakamura, Hiraku Ogura, Toshiyuki Murakami (Keio Univ.)

Sponsorship: The Technical Group on EMD of IEICE

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