The 17th Takayanagi Kenjiro Memorial Symposium

Research Institute of Electronics, Shizuoka University

Toward Advanced Imaging Science Creation

–50th Anniversary of Research Institute of Electronics–

DATE November 17 and 18, 2015, Registration Fee: Free

Location Sanaru Hall, Hamamatsu Campus, Shizuoka University
3-5-1 Johoku, Naka-ku, Hamamatsu 432-8011, Japan.

Program

Tuesday, November 17

10:00 **Opening (Chair: Prof. H. Suzuki)**

Yukihiro Ito (President of Shizuoka University)

Hidenori Mimura (Director of Research Institute of Electronics, Shizuoka University)

10:15 **Plenary Talks 1 (Chair: Prof. H. Suzuki)**

Invited Talk ❶ ***Carbon Nanotube Via Interconnects for 30 nm Linewidth and Beyond***
Cary Y. Yang
(Santa Clara University, USA)

Invited Talk ❷ ***Digital Silicon Photomultipliers for Medical Applications***
Edoardo Charbon
(Delft University of Technology, Netherlands)

Invited Talk ❸ ***Compact High-Speed Optical Switching - Enabled by Large Linear Electro-Optic Effect***
Juerg Leuthold
(ETH Zurich, Switzerland)

12:15 *Lunch*

13:30 **Talks by New RIE Members (Chair: Prof. H. Inokawa)**

❶ ***Single cell manipulation using a scanning ion conductance microscope***
Futoshi Iwata
(Research Institute of Electronics, Shizuoka University, Japan)

❷ ***Transformation between inverse bicontinuous cubic phases of a lyotropic liquid crystal***
Toshihiko Oka
(Research Institute of Electronics, Shizuoka University, Japan)

❸ ***Crystal structure and electrical properties of novel transparent conductive oxide***
Naoki Wakiya
(Research Institute of Electronics, Shizuoka University, Japan)

15:00

Poster Presentations by Young Researchers

❶ ***Effects of cholesterol on the entry of cell-penetrating peptide transportan 10 (TP10) into a single vesicle***

Md. Z. Islam[1], S. Sharmin[1], and M. Yamazaki[1,2,3]

([1]Int. Biosci., Grad. Sch. Sci. Tech., Shizuoka Univ., [2]Res. Inst. Electronics, Shizuoka Univ., [3]Dept. Phys., Grad. Sch. Sci., Shizuoka Univ., Japan)

❷ ***Antimicrobial peptide Lactoferricin B-Induced Pore Formation in Single Giant Unilamellar Vesicles***

Md. Moniruzzaman[1], J. Md. Alam[2], H. Dohra[3], and M. Yamazaki[1,2,4]

([1]Int. Biosci., Grad. Sch. Sci. Tech., Shizuoka Univ. [2]Res. Inst. Electronics, Shizuoka Univ. [3]Res. Inst. Green Sci. Tech., Shizuoka Univ., [4]Dept. Phys., Grad. Sch. Sci., Shizuoka Univ., Japan)

❸ ***Antimicrobial Peptide PGLa-Induced Pore Formation in Lipid Membranes and its Synergistic Effect with Magainin 2***

F. Parvez[1], J. Md. Alam[2], H. Dohra[3], and M. Yamazaki[1,2,4]

([1]Int. Biosci., Grad. Sch. Sci. Tech., Shizuoka Univ., [2]Res. Inst. Electronics, Shizuoka Univ., [3]Res. Inst. Green Sci. Tech., Shizuoka Univ., [4]Dept. Phys., Grad. Sch. Sci., Shizuoka Univ., Japan)

❹ ***Effect of synthesis conditions on electrical properties of barium titanate ferroelectric thin film***

T. Arai[1], Y. Kamai[2], N. Sakamoto[3], T. Ohno[4], T. Matsuda[4], N. Wakiya[3], and H. Suzuki[3]

([1]Grad. Sch. Sci. Tech., Shizuoka Univ., [2]Grad. Sch. Eng., Shizuoka Univ., [3]Res. Inst. Electronics, Shizuoka Univ., [4]Dept. Materials Sci., Kitami Inst. Tech., Japan)

❺ ***Preparation and morphological study of superparamagnetic magnesium ferrite nano-sphere for hyperthermia applications***

H. Das[1,2], T. Arai[1], N. Sakamoto[3], K. Shinozaki[4], H. Suzuki[1,3], and N. Wakiya[1,3]

([1]Grad. Sch. Sci. Tech., Shizuoka Univ., Japan, [2]Materials Sci. Division, Atomic Energy Centre, Bangladesh, [3]Res. Inst. Electronics, Shizuoka Univ., Japan, [4]Dept. Metallurgy and Ceramics Sci., Tokyo Inst. Tech., Japan)

❻ ***Initial Investigations on $Li_7La_3Zr_2O_{12}$ solid electrolyte based Lithium-ion batteries***

P. J. Kumar[1], Y. Hayashi[2], M. Senna[1,3], H. Sakamoto[1], N. Wakiya[1], and H. Suzuki[1]

([1]Res. Inst. Electronics, Shizuoka Univ., Japan, [2]Grad. Sch. Eng., Shizuoka Univ., Japan, [3]Faculty of Sci. and Tech., Keio Univ., Japan)

❼ ***Multi-GPU HIE-FDTD method for Solution of the Large Scale Electromagnetic Problems with Thin Structure***

Y. Inoue and H. Asai

(Res. Inst. Electronics, Shizuoka Univ., Japan)

❽ ***Control of nanostructure of fluorine-doped tin oxide thin film by atomized spray pyrolysis deposition***

A. Badara[1], M. Okuya[2], M. Shimomura[2], R.M.G. Rajapakse[3] and K. Murakami[2]

([1]Grad. Sch. Sci. Tech. and [2]Grad. Sch. Integ. Sci. and Tech., Shizuoka Univ., [3]Dept. Chemistry, Univ. of Peradeniya, Sri Lanka)

❾ ***Characterization of low-temperature synthesized organic mechanoluminescent materials***

M. Ranasinghe[1], M. Okuya[2], M. Shimomura[2], R. M. G. Rajapakse[3] and K. Murakami[2]

([1]Grad. Sch. Sci. Tech. and [2]Grad. Sch. Integ. Sci. and Tech., Shizuoka Univ., [3]Dept. Chemistry, Univ. of Peradeniya, Sri Lanka)

❿ ***Effect of seed layer on growth of vertically aligned ZnO nano rods***

A. Bramantyo[1], M. Okuya[2],N. R. Poespawati[3] and K. Murakami[2]

([1]Grad. Sch. Sci. Tech. and [2]Grad. Sch. Integ. Sci. and Tech., Shizuoka Univ., [3]Dept. Electrical Eng., Univ. of Indonesia, Indonesia)

⓫ ***Reduction of surface roughness in wafer bonded p-type Ge-on-insulator layer by chemical mechanical polishing***

V. Manimuthu[1,2] and H. Ikeda[1,2]

([1]Grad. Sch. Sci. Tech., Shizuoka Univ., [2]Res. Inst. Electronics, Shizuoka Univ., Japan)

⓬ ***Ag-doped ZnO nanocomposites with enhanced Seebeck coefficient***

V. Pandiyarasan[1,2], F. Salleh[3], and H. Ikeda[1,2]

([1]Grad. Sch. Sci. Tech., Shizuoka Univ., [2]Res. Inst. Electronics, Shizuoka Univ., [3]Faculty of Eng., Univ. of Malaya)

⓭ ***Simulation of electron beam heating in a novel thermal conductivity measurement technique for nanowire-thermopile materials***

N. Yamashita[1,2], F. Salleh[3], F. Kuwahara[1], M. Shimomura[1], K. Murakami[1], and H. Ikeda[1,2]

([1]Grad. Sch. Sci. Tech., Shizuoka Univ., [2]Res. Inst. Electronics, Shizuoka Univ., [3]Faculty of Eng., Univ. of Malaya)

⓮ ***Phonon-drag contribution to Seebeck coefficient in nanometer-scaled Si wires***
Y. Suzuki[1,2], T. Aramaki[2], F. Salleh[3], and H. Ikeda[1,2]
([1]Grad. Sch. Sci. Tech., Shizuoka Univ., [2]Res. Inst. Electronics, Shizuoka Univ., [3]Faculty of Eng., Univ. of Malaya)

⓯ ***Dynamical modification of the equivalent circuit with the bias voltage in a multiple-dopant system***
A. Samanta[1], D. Moraru[2], Y. Takasu[1], T. Mizuno[1], and M. Tabe[1]
([1]Res. Inst. Electronics, Shizuoka Univ., [2]Faculty of Eng., Shizuoka Univ., Japan)

⓰ ***Cu_2ZnSnS_4 decorated reduced graphene oxide nanocomposite: synthesis and optical properties***
D. Thangaraju[1], R. Karthikeyan[2], N. Prakash[2], T. Koyama[1], and Y. Hayakawa[1,2]
([1]Res. Inst. Electronics, Shizuoka Univ., Japan, [2]Grad. Sch. Sci. Tech., Shizuoka Univ., Japan)

⓱ ***Thermoelectric properties of compositionally homogeneous P and N-type SiGe bulk crystals***
M. Omprakash[1], M. Arivanandhan[2], T. Koyama[1], Y. Momose[1], H. Ikeda[1], H. Tatsuoka[3], D. K. Aswal[4], S. Bhattacharya[4], Y. Okano[5], Y. Inatomi[6], and Y. Hayakawa[1]
([1]Res. Inst. Electronics, Shizuoka Univ., Japan, [2]Anna Univ., Chennai, India, [3]Faculty of Eng., Shizuoka Univ., Japan, [4]Bhaha Atomic Research Center, India, [5]Grad. Sch. Eng. Sci., Osaka Univ., Japan, [6]Japan Aerospace Exploration Agency, Japan)

⓲ ***Novel ternary compound $Cu_{1-x}Cd_xS_2$ thin films by single step solution process for low cost photovoltaic devices***
V. N. Kumar[1,3], R. Suriakarthick[3], R. Gopalakrishnan[3], and Y. Hayakawa[1,2]
([1]Grad. Sch. Sci. Tech., Shizuoka Univ., Japan, [2]Res. Inst. Electronics, Shizuoka Univ., Japan, [3]Crystal Research Laboratory, Dept. Physics, Anna Univ., India)

⓳ ***Synthesis of Erbium co-doped TiO_2/Ag nanocomposites with enhanced photocatalytic activity for Rhodamine B degradation under visible light irradiation***
N. Prakash[1], R. Karthikeyan[1], D. Thangaraju[2], T. Koyama[2], and Y. Hayakawa[1,2]
([1]Grad. Sch. Sci. Tech., Shizuoka Univ., Japan, [2]Res. Inst. Electronics, Shizuoka Univ., Japan)

⓴ ***Controlled synthesis and morphology investigation of ethylenediamine passivated ZnO nanostructures and its photocatalytic activity under visible light irradiation***
S. Harish[1], J. Archana[2], M. Navaneethan[2], S. Ponnusamy[3], C. Muthamizhchelvan[3], and Y. Hayakawa[1,2]
([1]Grad. Sch. Sci. Tech., Shizuoka Univ., Japan, [2]Res. Inst. Electronics, Shizuoka Univ., Japan, [3]SRM Univ., Chennai, India)

㉑ ***Combustion analysis of a single ethanol droplet by laser trapping technique***
S. Fujikawa[1], W. Inami[2], and Y. Kawata[2]
([1]Faculty of Eng., Shizuoka Univ., [2]Res. Inst. Electronics, Shizuoka Univ., Japan)

㉒ ***Non-perturbative measurement of evanescent fields***
T. Okamoto[1], W. Inami[1,2], and Y. Kawata[1,2]
([1]Faculty of Eng., Shizuoka Univ., [2]Res. Inst. Electronics, Shizuoka Univ., Japan)

㉓ ***Enhanced Photoelectron Emission with Deep-UV Surface Plasmon Resonance Excitation***
N. Shiroshita[1], A. Ono[1,2], M. Kikawada[1], W. Inami[1,2], and Y. Kawata[1,2]
([1]Grad. Sch. Eng., Shizuoka Univ., Japan, [2]Res. Inst. Electronics, Shizuoka Univ., Japan)

㉔ ***Development of cell stimulation by electron beam irradiation***
D. Horiba[1], W. Inami[1,2], and Y. Kawata[1,2]
([1]Grad. Sch. Eng., Shizuoka Univ., Japan, [2]Res. Inst. Electronics, Shizuoka Univ., Japan)

17:30 *Reception (Chair: Prof. Kawata)*
North Cafeteria, Hamamatsu Campus, Shizuoka University

Wednesday, November 18

9:00 **Plenary Talks 2 (Chair: Prof. Y. Hayakawa)**

Invited Talk ❶ ***Graphene Oxide Supported Binary Metal-Oxide Photocatalysts for Complete Degradation of Organic Pollutants in the Presence of Ultrasound under Diffused Light***
Bernaurdshaw Neppolian
(SRM University, India)

Invited Talk ❷ ***Gas Response of ZnO Nanostructures using Surface Plasmon Resonance and Microcantilever***
Ratno Nuryadi
(University of Indonesia, Indonesia)

10:20 *Coffee Break*

10:30 **Special Talks on Network-Type Joint Research (Chair: Prof. H. Mimura)**

Invited Talk ❶ ***Detection of Biomolecular Recognition and Cell Functions using Biotransistors***
Yuji Miyahara
(Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University, Japan)

Invited Talk ❷ ***Ultrawideband Radar-Based Confocal Imaging for Breast Tumor Detection***
Takamaro Kikkawa
(Research Institute for Nanodevice and Bio Systems, Hiroshima University, Japan)

Invited Talk ❸ ***Development of High Sensitivity Inertia Sensor and its Application to Early-Stage Diagnosis of Parkinson Disease***
Kazuya Masu
(Precision and Intelligence Laboratory, Tokyo Institute of Technology, Japan)

12:30 *Lunch*

13:30 **Lectures by Takayanagi Prize Winners 1 (Chair: Prof. M. Tabe)**

Invited Talk ❶ ***Multiphase Flow Measurement using an Optical Fiber and Laser –Seamless Development from Fundamentals to Practical Applications–***
Takayuki Saito
(Shizuoka University, Japan)

Invited Talk ❷ ***Recent Development of Watt-Class High Power Photonic-Crystal Lasers***
Kazuyoshi Hirose
(Hamamatsu Photonics K. K., Japan)

Invited Talk ❸ ***Stress Engineering for Piezoelectric Thin Film on a Si wafer***
Tomoya Ohno
(Kitami Institute of Technology, Japan)

15:10 *Coffee Break*

15:30 **Lectures by Takayanagi Prize Winners 2 (Chair: Prof. T. Sugiura)**

Invited Talk ❹ ***Opto-Electronic Camera Systems and Devices for Biomedical Applications***
Keiichiro Kagawa
(Shizuoka University, Japan)

Invited Talk ❺ ***Nanoimaging using an Electron Beam Excited Light Spot***
Wataru Inami
(Shizuoka University, Japan)

16:30 *Closing*

Hisao Suzuki
(Symposium Chair)

Organizer: Research Institute of Electronics, Shizuoka University

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