

## First Prizes

### 16C1-4

#### **PI Current Control Method for Realizing Deadbeat Characteristics**

Shota Kuroda, Kenji Natori, Yukihiro Sato  
*Chiba University, Japan*

### 18H2-2

#### **Variable Coupling Coefficient Integrated Inductor for Hybrid Energy Source Systems**

Masanori Ishigaki, Koji Shigeuchi, Naoki Yanagizawa, Daiki Nitta, Shuji Tomura  
*Toyota Central R&D Labs., Inc., Japan*

### 19E4-1

#### **99%, 15 W/cm<sup>3</sup> capacitively coupled modular DCPET for low-voltage dc power supply system**

Keigo Arita, Yusuke Hayashi, Kazuto Takao  
*Toshiba Corporation, Japan*

### 19G4-2

#### **Standstill Sensorless Self-Commissioning Strategy of Synchronous Machine Considering Rotor Rotation Reduction Technique**

Hyun-Jun Lee, Je-Eok Joo, Young-Doo Yoon  
*Hanyang University, Korea*

## Second Prizes

### 17C1-4

#### **Study on Interconnecting Operation Control of Electronic Frequency Converters Realizing the Replacement of All Rotary Frequency Changers in Nishisagami Substation in the Tokaido Shinkansen**

Toshimasa Shimizu<sup>1</sup>, Ken Kunomura<sup>1</sup>, Hiroki Miyajima<sup>2</sup>, Takumi Nagai<sup>2</sup>  
1) Central Japan Railway Company, Japan, 2) Toshiba Infrastructure Systems & Solutions Corporation, Japan

### 19F2-2

#### **Current Ripple Reduction with Enhanced ZVS Operation Based on Off-time Discrete Control for DCM Inverters to Achieve High Efficiency**

Cheng Huang, Tomoyuki Mannen, Takanori Isobe  
*University of Tsukuba, Japan*

### 19H3-1

#### **Torque Estimation of a Variable Speed Induction Motor without Torque and Rotational Speed Meters**

Shu Yamamoto<sup>1</sup>, Hideaki Hirahara<sup>1</sup>, Masayuki Motosugi<sup>1,2</sup>  
1) Polytechnic University, Tokyo, Japan, 2) Polytechnic Center Kochi, Japan

## Third Prizes

### 16D1-4

#### **Adjustable Carrier Phase Shift Operation of Switching Cycle Control for Modular Multilevel Converters**

Jayesh Kumar Motwani, Boran Fan, Slavko Mocevic, Jianghui Yu, Yu Rong, Dushan Boroyevich, Dong Dong, Rolando Burgos  
*Virginia Tech, USA*

### 17E2-4

#### **Voltage Modulation Method for T-type Three-Level Inverter with Reduced Conduction Loss in Low Voltage Modulation Region**

Cheolmin Hwang, Gyu Cheol Lim, Jonghun Choi, Jung-Ik Ha  
*Seoul National University, Korea*

### 18C3-1

#### **Feasibility Study of High-Frequency Transformer with High-Voltage Insulation Structure for SST Based Medium-Voltage Multi-Level Converter**

Yuki Kawaguchi, Kimihisa Furukawa, Takae Shimada, Junpei Kusukawa  
*Hitachi, Ltd., Japan*