

# I-FMP01

## International Poster Session

13:00-13:50 Chair : Lee Man Hyung (Pusan National Univ.)  
Room : Terrace(3F) Co-Chair : Suh Il Hong (Hanyang Univ.)

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13:00 – 13:50

I-FMP-07

### A New Speaker Adaptation Technique using Maximum Model Distance

S. Kwong(City Univ. of Hong Kong),  
Q. H. He(South China Univ. of Technology)

This paper presented an adaptation approach based on maximum model distance (MMD) method. This method shares the same framework as they are used for training speech recognizers with abundant training data. The MMD method could adapt to all the models with or without adaptation data. If large amount of adaptation data is available, these methods could gradually approximate the speaker-dependent ones. The approach is evaluated through the phoneme recognition task on the TIMIT corpus. On the speaker adaptation experiments, up to 65.55% phoneme error reduction is achieved. The MMD could reduce phoneme error by 16.91% even when only one adaptation utterance is used.

13:00 – 13:50

I-FMP-09

### Signal increasing method in confocal scanning microscopy in fluorescence mode using curved mirror

Dong-kyun Kang, Jung-woo Seo, and Dae-gab Gweon (KAIST)

In fluorescence mode confocal scanning microscope, level of detected signal is very low. In object scanning type confocal scanning microscope, the additional optical system with objective lens and plane mirror was proposed to increase signal intensity, but there was none for beam scanning type confocal scanning microscope. We propose reflecting optical systems which improve signal intensity in beam scanning type confocal scanning microscope. We choose one of the proposed optical systems and design the optical system, i.e., select optical components and assign distances between the selected components. To design the optical system, we use finite ray tracing method and make cost function to be minimized.

13:00 – 13:50

I-FMP-11

### Estimation and Measurement of the Traction return current on the electrified Gyeongbu line

Y.K.KIM, D.C.YANG, M.S.HAN(Korea Railroad Research Institute),  
C.K.RYU(Namseoul Univ.)

This study presents a simulation of the traction return current based on 2x25kV power supply system in order to determine the impedance bond intensity of impulse type track circuit on the electrified Gyeongbu line. The results of the simulation enables us to measure the precise intensity of catenary current that returns to the substation through KTX (Korean Train Express) operated by 2x25kV power supply system with common earth network. The combination of 2x25kV and common earth network established on the electrified Gyeongbu line for the first time in Korea. We show that the relationships among the traction return current, earth current, and catenary current can be applied to this line in order to determine the optimal impedance bond intensity ...

13:00 – 13:50

I-FMP-08

### Electronically Tunable Current-Mode Second-Order Multifunctional Filter Using FTFNs and Dual-Output OTAs

Worapong TANGSRIRAT, Kongsak ANUNTAHIRUNRAT and  
Wanlop SURAKAMPONTORN (ReCCIT, KMITL)

An electronically tunable current-mode second-order multifunctional filter is described in this paper. The proposed filter consists of two four-terminal floating nullors (FTFNs), two dual-output OTAs and two grounded capacitors. The circuit can simultaneously realize the lowpass, bandpass and highpass current transfer functions from the same configuration without changing the circuit configuration and elements. The natural angular frequency  $\omega_0$  and the parameter  $\omega_0/Q$  can be orthogonally controlled through adjusting the transconductance gain of OTA. PSPICE simulation results are employed to confirm the circuit performance.

13:00 – 13:50

I-FMP-10

### Improving of Starting and Low Speed Performance of PMAC with Linear Encoder

Lee Dong-Hee(Pusan Univ.), Lee Hwa-Seok(Koje College), Park  
Sung-Jun(Tongmyung College), Lee Yang-Woo(Donggeui Univ.)

PMAC(Permanent magnet AC motor drives are widely used in the industrial applications and home appliances because of high torque ratio, high efficiency and precise control performance. In recent years there has been a significant development of PMAC motors of various kinds. Improvements in the properties of permanent magnet materials have increased the viability of related types of motors. However, precise speed and position information is essential for the good control performance. In order to produce correct torque, the rotor flux position information from position sensor has to be identified. In this paper, a low cost position sensor is proposed for improving of starting and low speed performance of PMAC. The proposed position ...

13:00 – 13:50

I-FMP-12

### Modeling and Parameter Optimization of Agile Beam Radar Tracking in Cluttered Environments

Sun-Mog Hong (Kyungpook Univ.), Young-Hun Jung(Kyungwoon Univ.)

The parameter optimization for agile beam radar tracking is addressed to minimize the radar resources that are required to maintain a target under track. The parameters to be optimized include the track-revisit interval and the sequence of pairs of target signal strengths and detection thresholds associated with repeated illumination attempts in each track-revisit. The optimization problem is solved numerically for typical examples.