

# DETAILED SCIENTIFIC PROGRAM LOGMS 2014

Room numbers :

Forum : M3-15  
Santander : M2-11  
Shanghai : M2-12  
Rochester : M2-10  
Restaurant : M3-09

**Wednesday 27 August, 2014**

08.00-09.00 : **Registration desk ground floor** : Registration

09.00-09.10 : **Forum** : Welcome and opening conference

09.15-10.00 : **Forum** : Plenary 1

10.00-10.45 : **Forum** : Plenary 2

10.45-11.15 : **Restaurant** : Coffee/tea break

11.15-12.45 : **Forum : 1.1 - Session 1-Terminal operations 1, Chair : F.J. Srouf**

## PLANNING OF CONTAINER TRANSFERS IN A MULTIMODAL PLATFORM

X. Schepler, S. Balev, S. Michel, E. Sanlaville  
Université du Havre, LE HAVRE, France

## CONTINUOUS BERTH ALLOCATION PROBLEM CONSIDERING MULTIPLE QUAYS: MODELS AND ALGORITHMS

J.F. Correcher, R. Alvarez-Valdes, J.M. Tamarit  
University of Valencia, BURJASSOT, Spain

## MODELING THE IMPACT OF MARITIME TERMINAL SHIFT LENGTHS ON PRODUCTIVITY

F.J. Srouf, N. El Baba  
Lebanese American University, BEIRUT, Lebanon

11.15-12.45 : **Santander : 1.2 - Session 2-Inter terminal transport, Chair R.R. Negenborn**

## FAIR JOB ALLOCATION IN INTER TERMINAL TRANSPORT

Q.C. Ye, Y. Zhang, R. Dekker  
Erasmus University Rotterdam, ROTTERDAM, Nederland

## A STOCHASTIC MODEL FOR INTER-TERMINAL CONTAINER TRANSPORTATION

N. Mishra<sup>1</sup>, D. Roy<sup>2</sup>, J. K. Van Ommeren<sup>3</sup>  
<sup>1</sup>Rotterdam School of Management, ROTTERDAM, Nederland

## A FASTER A\* ALGORITHM FOR INTRA-BAY CONTAINER PRE-MARSHALLING PROBLEM

B.H. Ha  
Pusan National University, BUSAN, South-Korea

11.15-12.45 : **Shanghai : 1.3 - Session 3-Green operations 1, Chair S.H. Ng**

## STUDY OF SHIP EXHAUST EMISSION ESTIMATION

B. Dragovic<sup>1</sup>, M. Skuric<sup>1</sup>, A. Skraba<sup>2</sup>, D. Kofjac<sup>2</sup>  
<sup>1</sup>Maritime Faculty, University of Montenegro, KOTOR, Yugoslavia

## CO2-METHOD KIT - DETERMINATION OF GHG-EMISSIONS IN LOGISTICS COMPANIES WITH A SPECIFIC METHOD KIT

Z. Miodrag, U. Clausen  
Institut für Transportlogistik, DORTMUND, Germany

## UNCERTAINTY QUANTIFICATION OF CO2 REDUCTION POTENTIALS FOR MARITIME SHIPPING

S.H. Ng, J. Yuan  
National University of Singapore, SINGAPORE, Singapore

12.45-13.45 : **Restaurant** : Lunch

**13.45-15.15 : Forum : 2.1 - Session 5-Terminal operations 2, Chair M.B.M. de Koster**

**SIMULTANEOUS DERIVATION OF CONTAINER STACKING STRATEGY AND CRANE DISPATCHING STRATEGY FOR AN AUTOMATED CONTAINER YARD**

T. Kim, A. Bae, R. Ryu  
Pusan National University, BUSAN, South-Korea

**EFFICIENT STACKING ALGORITHM FOR REDUCING ENERGY CONSUMPTION AND UNPRODUCTIVE MOVEMENTS IN SEMI-AUTOMATED CONTAINER TERMINALS**

E. Martín Alcalde<sup>1</sup>, P. Teran<sup>2</sup>, P. Morales-Fusco<sup>1</sup>, S.M. Sauri<sup>1</sup>  
<sup>1</sup>CENIT, BARCELONA, Spain

**EFFECT OF QUAY AND STACK CRANE SERVICE TIME VARIABILITY ON VESSEL SOJOURN TIMES**

M.B.M. de Koster<sup>1</sup>, D. Roy<sup>2</sup>, V. Dhingra<sup>2</sup>  
<sup>1</sup>Erasmus University Rotterdam, ROTTERDAM, Nederland

**13.45-15.15 : Santander : 2.2 - Session 6-Multimodal transport 1, Chair E. Kozan**

**THE ONE-DIMENSIONAL DYNAMIC DISPATCH WAVES PROBLEM**

M. Klapp Belmar, A. Toriello, A. Erera  
Georgia Tech, ATLANTA, United States of America

**REAL-TIME ACCOMMODATION OF DISRUPTIONS AT INTERMODAL CONTAINER TERMINALS BY RESCHEDULING CONNECTIONS**

J. Nabais<sup>1</sup>, R.R. Negenborn<sup>2</sup>, R. Carmona Benítez<sup>3</sup>, M.A. Botto<sup>4</sup>  
<sup>1</sup>IDMEC, SETÚBAL, Portugal

**AN INTEGRATED CONTAINER SCHEDULING APPROACH FOR MULTIMODAL CONTAINER TERMINALS**

E. Kozan, G. Dik  
Queensland University of Technology, BRISBANE, Australia

**13.45-15.15 : Shanghai : 2.3 - Session 7- Cooperation and competition 1, Chair N. Liu**

**COMPETITION BETWEEN CONTAINER PORTS IN THE NORTH ADRIATIC**

E. Twrdy, M. Batista  
University of Ljubljana, PORTOROZ, Slovenia

**AN EXPLORATION OF THE INLAND TERMINAL MARKETS IN EUROPE**

H. Saeedi, B. Wiegman, R. Zuidwijk  
TUDelft, DELFT, Nederland

**COOPERATION VS. NON-COOPERATION BETWEEN PORTS AND SHIPPING COMPANIES: A GAME THEORY APPROACH**

N. Liu, X. Xiao  
Zhejiang University, HANGZHOU, China

**13.45-15.15 : Rochester : 2.4 - Session 8-Transport over road, Chair N. Li**

**COLLABORATIVE TRUCK SCHEDULING AND TRUCK ARRIVAL APPOINTMENT BY TRUCKING COMPANIES AND A CONTAINER TERMINAL**

T.M.H. Phan, K.H. Kim  
Pusan National University, BUSAN, South-Korea

**REHANDLING PROBLEM OF PICKUP CONTAINERS UNDER TRUCK APPOINTMENT SYSTEM**

D. Ku  
University of Auckland, AUCKLAND, New Zealand

**OPTIMIZATION OF EXTERNAL TRUCK APPOINTMENT QUOTA WITH DEPLOYMENT OF YARD EQUIPMENT AND GATE LANES**

N. Li<sup>1</sup>, X. Huang<sup>2</sup>  
<sup>1</sup>Dalian Maritime University, DALIAN, China

**15.15-15.45 : Restaurant : Coffee/tea break**

**15.45-17.30 : Forum : 3.1 - Session 9-Terminal operations 3, Chair O. Pernia Fernadez**

**AN APPLICATION OF MOLDABLE TASK SCHEDULING IN MARITIME TERMINALS**

O. Unsal<sup>1</sup>, C. Oguz<sup>2</sup>

<sup>2</sup>Koc University, ISTANBUL, Turkey

**DEVELOPMENT OF A TERMINAL OPERABILITY FORECASTING SYSTEM: ANALYSIS OF THE EFFECTS THAT WIND GENERATES OVER QUAY CRANES PERFORMANCE**

R. Gomez<sup>1</sup>, R. Molina<sup>1</sup>, O. Pernía<sup>2</sup>, A. Camarero<sup>3</sup>, F. De los Santos<sup>4</sup>

<sup>1</sup>Harbor Research Laboratory, MADRID, Spain

**A HOLISTIC OPTIMIZATION METHOD FOR PLANNING AND CONTROL OPERATIONS AT FULL AUTOMATED CONTAINER TERMINALS**

O. Pernia Fernandez, A. Torson, J. Scattergood, M. Ciarlegio

Navis LLC, OAKLAND, United States of America

**15.45-17.30 : Santander : 3.2 - Session 10-Multimodal transport 2, Chair J. Nabais**

**THE VALUE OF FLEXIBLE ORDERS FOR A SYNCHROMODAL TRANSPORTATION PLAN**

B. van Riessen, R.R. Negenborn<sup>2</sup>, R. Dekker<sup>1</sup>

Erasmus University Rotterdam, ROTTERDAM, Nederland

**EQUILIBRIUM MODELS IN MULTI-MODAL CONTAINER TRANSPORT SYSTEMS**

F. Corman<sup>1</sup>, F. Viti<sup>2</sup>, R.R. Negenborn<sup>1</sup>

<sup>1</sup>Delft University of Technology, DELFT, Nederland

**FLOW CONSOLIDATION IN HINTERLAND INTERMODAL CONTAINER TRANSPORT- AN ANALYTICAL STUDY**

B. Behdani, R. Zuidwijk, W.U. Aiyu

TU Delft, DELFT, Nederland

**IMPACT OF TRANSPORT MODAL SPLIT POLICIES ON SEAPORT PERFORMANCE**

J. Nabais<sup>1</sup>, R.R. Negenborn<sup>2</sup>, R. Carmona Benítez<sup>3</sup>, M.A. Botto<sup>4</sup>

<sup>1</sup>IDMEC, SETÚBAL, Portugal

**15.45-17.30 : Shanghai : 3.3 - Session 11-Shipping and maritime optimization, Chair E. Ursavas**

**TWO PROBLEMS IN REAL-TIME OPERATIONS MANAGEMENT AT A SEAPORT CONTAINER TRANSSHIPMENT TERMINAL**

E.H. Petering

University of Wisconsin--Milwaukee, MILWAUKEE, WISCONSIN, United States of America

**YARD ASSIGNMENT PROBLEM IN BULK PORT TERMINALS**

I. Koyuncu, C. Oguz

Koc University, ISTANBUL, Turkey

**IMPACT OF FORECAST ERRORS ON TRANSPORTATION COSTS IN SEA FREIGHT PROCUREMENT - A SIMULATION-BASED APPROACH**

R. Elbert, D. Reinhardt

TU Darmstadt, DARMSTADT, Germany

**OFFSHORE WIND TURBINE INSTALLATION UNDER UNCERTAINTY**

E. Ursavas, J. Tan

University of Groningen, GRONINGEN, Nederland

**18.00-19.30: Town Hall: Welcome reception**

Thursday 28 August, 2014

08.00-08.30: **Registration desk 2<sup>nd</sup> floor** : Registration

**08.30-10.15 : Forum : 4.1 - Session 13-Terminal operations 4, Chair H. Schuett**

**EVALUATION OF SPACE PLANNING STRATEGIES AND LAGGED RESERVATION IN CONTAINER TERMINALS**

P. Terán Cobo<sup>1</sup>, S. Saurí Marchán<sup>2</sup>

<sup>1</sup>SENER Ingeniería y Sistemas, CERDANYOLA DEL VALLÉS, Spain

**INTELLIGENT CANCELS OF HORIZONTAL TRANSPORT ORDERS IN FULLY AUTOMATED CONTAINER TERMINAL OPERATIONS**

A. Torson

Navis, LAFAYETTE, United States of America

**SIMULATION OF POWER DEMAND IN A MARITIME CONTAINER TERMINAL USING AN EVENT-DRIVEN DATA ACQUISITION MODULE**

S. Runge<sup>1</sup>, N. Ihle<sup>1</sup>, A. Hahn<sup>1</sup>, H.J. Appelrath<sup>1</sup>, J. Schmidt<sup>2</sup>, L.M. Kolbe<sup>2</sup>

<sup>1</sup>University of Oldenburg, OLDENBURG, Germany

**SHIFT PREVIEW - A SIMULATION BASED SUPPORT OF THE SHORT-TERM PLANNING OF CONTAINER TERMINAL OPERATION**

H. Schuett

ISL Applications GmbH, BREMERHAVEN, Germany

**08.30-10.15 : Santander : 4.2 - Session 14-Supply chains, Chair B. Huang**

**THE EVOLUTION OF SMART-WEB SUPPLY CHAIN USING INTELLIGENT GOVERNANCE SYSTEM**

M.I. Santoso, B. Noche

Universität Duisburg-Essen, DUISBURG, Germany

**CONSTRUCTING THE SAFETY MANAGEMENT SYSTEMS FOR FOOD COLD CHAIN LOGISTICS BASED ON ISO 28000 STANDARD**

H. Piao<sup>1</sup>, X. Huang<sup>2</sup>, F. Li<sup>2</sup>

<sup>1</sup>Dalian Maritime University, DALIAN, China

**PRICING OF REMANUFACTURED PRODUCT WITH REPLACEMENT PURCHASE**

B. Huang<sup>1</sup>, L. Jing<sup>1</sup>, X.M. Yuan<sup>2</sup>

<sup>1</sup>National University of Singapore, SINGAPORE, Singapore

**08.30-10.15 : Shanghai : 4.3 - Session 15-Transport over water, Chair R.R. Negenborn**

**FEASIBILITY OF SHUTTLE SERVICES IN LINER SHIPPING NETWORKS**

J. Mulder, R. Dekker

Erasmus University Rotterdam, ROTTERDAM, Nederland

**GREEN WATERBORNE CONTAINER LOGISTICS WITHIN PORTS**

U. Malchow

Hochschule Bremen - University of Applied Sciences, BREMEN, Germany

**SHIP ROUTING PROBLEM IN A STEEL MANUFACTURING COMPANY**

J.S. Lee, B.I. Kim

POSTECH, POHANG, South-Korea

**PORT OPERATION AND MANAGEMENT - OVERVIEW OF THE KEY RESEARCH PROJECT OF NSFC**

F. Wang

Sun Yat-sen Business School, GUANGZHOU, China

**08.30-10.15 : Rochester : 4.4 - Session 16-Ocean Container Transport Logistics, Chair X. Qi**

**NEW SOLUTION METHODS FOR THE CONTINUOUS BERTH ALLOCATION PROBLEM**

Z. Xu<sup>1</sup>, C-Y Lee<sup>2</sup>

<sup>1</sup>Hong Kong Polytechnic University, HONG KONG, Hongkong - China

**COST, CARBON EMISSIONS AND MODAL SHIFT IN INTERMODAL NETWORK DESIGN DECISIONS**

Y. Bouchery, J C Fransoo

Eindhoven University of Technology, EINDHOVEN, Nederland

**A NOVEL CAPACITY ALLOCATION CONTRACT IN THE OCEAN FREIGHT INDUSTRY**

Q. Liu, C.Y. Lee, S. Zheng

HKUST, HONG KONG, Hongkong - China

**VESSEL AND CONTAINER SCHEDULING FOR FEEDER LINES**

X. Qi

HKUST, CLEARWATER BAY, Hongkong - China

**10.15-10.45 : Restaurant : Coffee/tea break**

**10.45-12.30 : Forum : 5.1 - Session 17-Terminal design 1, Chair C. Jahn**

**A SIMULATION BASED APPROACH TO FIND AN OPTIMAL FITTING OF E-MOBILITY EQUIPMENT IN A MARITIME CONTAINER TERMINAL**

N. Grundmeier, A. Hahn

Universität Oldenburg, OLDENBURG, Germany

**A NEXT GENERATION CONTAINER PORT**

N Zaerpour<sup>1</sup>, M.B.M. de Koster<sup>2</sup>, B. Kuipers<sup>3</sup>, T. Been<sup>4</sup>, J. Hernandez Mayor<sup>4</sup>, H. Casanova Garcia<sup>4</sup>

<sup>1</sup>Rotterdam School of Management, Erasmus University, ROTTERDAM, Nederland

**QUEUING NETWORK MODELS IN PORT LOGISTICS**

P.L. Legato, R.M. Mazza

University of Calabria, RENDE (CS), Italy

**INTEGRATED SEAPORT TERMINAL PLANNING - CHALLENGES, POTENTIALS AND RESEARCH NEEDS TO IMPROVE PLANNING PROCESSES BY COMBINING VISUALIZATION, LOGISTICS AND SHIP HANDLING SIMULATION TECHNIQUES**

C. Jahn

Hamburg University of Technology, HAMBURG, Germany

**10.45-12.30 : Santander : 5.2 - Session 18-Warehouse Process modeling and improvement, Chair C. Kim**

**SYSTEM SUPPORTED PROCESS MODELING FOR WAREHOUSING ACTIVITIES**

K. Winter<sup>1</sup>, C. Geiger<sup>1</sup>, U. Clausen<sup>1</sup>, Z. Miodrag<sup>2</sup>

<sup>1</sup>TU Dortmund University, DORTMUND, Germany

**ENERGY CONSUMPTION ANALYSIS FOR EVALUATING ENERGY EFFICIENCY OF WAREHOUSE OPERATIONS IN KOREA**

C. Kim<sup>1</sup>, D.K. Kim<sup>1</sup>, Y.J. Kim<sup>2</sup>, S.Y. Kho<sup>1</sup>, B. Son<sup>3</sup>, S.P. Kang<sup>1</sup>

<sup>1</sup>Seoul National University, SEOUL, South-Korea

**CURRENT ISSUES ON WAREHOUSE ENERGY MANAGEMENT IN KOREA**

Y.J. Kim<sup>1</sup>, S. Lee<sup>2</sup>, J.U. Won<sup>2</sup>, K.T. Kim<sup>2</sup>

<sup>1</sup>Korea Railroad Research Institute, UIWANG, South-Korea

**WAREHOUSE OPERATION IMPROVEMENT EVALUATION THROUGH EFFECTIVE INSTALLATION OF FIRE PARTITION IN KOREA**

C. Kim, D.S. Kim, D.K. Kim

Seoul National University, SEOUL, South-Korea

10.45-12.30 : **Shanghai : 5.3 - Session 19-Cooperation and competition 2, Chair J.R. Daduna**

**COOPERATIVE LINER SHIPPING NETWORK DESIGN BY MEANS OF A COMBINATORIAL AUCTION**

R. Haass, T. Buer  
University of Bremen, BREMEN, Germany

**MULTI-PORT CONTAINERSHIP STOWAGE PLANNING CONSIDERING TERMINAL CHARACTERISTICS**

T. Muona<sup>1</sup>, E. Ursavas<sup>2</sup>, I.F.A. Vis<sup>2</sup>  
<sup>1</sup>Aalto university, HELSINKI, Finland

**FACILITY LOCATION AND TRANSPORTATION IN NAFTA AND THE EU**

J.H. Bookbinder, T.A. Bayley  
University of Waterloo, WATERLOO, Canada

**PANAMA CANAL VS. NICARAGUA CANAL - IMPACTS ON INTERNATIONAL AND REGIONAL MARITIME TRANSPORT**

J.R. Daduna  
HWR Berlin, BERLIN, Germany

12.30-13.30 : **Restaurant : Lunch**

13.30-14.15 : **Forum** : Plenary 3

14.45-15.00 : **Forum** : Plenary 4

15.00-15.30 : **Restaurant : Coffee/tea break**

15.30-17.15 : **Forum : 6.1 - Session 21-Terminal design 2, Chair C.A. Boer**

**ROBUST VEHICLE DISPATCH RULES AND TERMINAL DESIGN FOR AUTOMATED CONTAINER TERMINALS**

J.P. van der Gaast, M.B.M. de Koster  
Erasmus University, ROTTERDAM, Nederland

**DESIGN SUPPORT SIMULATION MODEL FOR AN OVERHEAD-SHUTTLE CONTAINER TERMINAL**

S.H. Won<sup>1</sup>, S.W. Cho<sup>1</sup>, S.H. Choi<sup>2</sup>, E.K. Lee<sup>2</sup>, H.M. Jeon<sup>2</sup>, M.H. Kang<sup>2</sup>  
<sup>1</sup>Kunsan National University, GUNSAN, JEONBUK, South-Korea

**AN EFFICIENT ANALYTICAL APPROACH FOR ESTIMATING THROUGHPUT IN SEA CONTAINER TERMINALS**

K.S. Duisters<sup>1</sup>, D. Roy<sup>2</sup>, I.J.B.F. Adan<sup>1</sup>  
<sup>1</sup>Eindhoven University of Technology, EINDHOVEN, Nederland

**NEAR-TO-LIFE-TRAINING FOR CONTAINER TERMINAL PLANNERS: BRIDGING THE GAP BETWEEN TRAINING AND LIVE OPERATION**

C.A. Boer<sup>1</sup>, Y. Saanen<sup>1</sup>, M. Bruggeling<sup>1</sup>, N. Koumaniotis<sup>2</sup>  
<sup>1</sup>TBA BV, DELFT, Nederland

15.30-17.15 : **Santander : 6.2 - Session 23-Shipping and Maritime maintenance and services, Chair D. Song**

**MAINTENANCE AND SERVICE LOGISTICS PLANNING IN THE MARITIME SECTOR: A LITERATURE REVIEW**

A.S. Eruguz, T. Tan, G.J. van Houtum  
Eindhoven University of Technology, EINDHOVEN, Nederland

**MARITIME SUPPLY CHAIN CHOICE MODELLING IN MERCHANT HAULAGE**

V. Flitsch, C. Jahn  
Hamburg University of Technology, HAMBURG, Germany

**OPTIMIZATION OF DISASTER RELIEF OPERATIONS BY USING ON- AND OFF-SHORE PREPOSITIONING OF DISASTER RELIEF ITEMS**

M. Sharifyazdi, K.A. Navangul, M. Jahre  
BI Norwegian Business School, OSLO, Norway

**OPTIMIZING SERVICE RELIABILITY AND FUEL CONSUMPTION IN LINER SHIPPING WITH UNCERTAIN PORT TIMES**

D. Song<sup>1</sup>, X. Qi<sup>2</sup>, C. Li<sup>2</sup>  
<sup>1</sup>University of Liverpool, LIVERPOOL, United Kingdom

19.00-22.00: **Spido: Dinner Cruise**

**Friday 29 August, 2014**

08.15-08.45: **Registration desk 2<sup>nd</sup> floor** : Registration

**08.45-10.30 : Forum : 7.1 - Session 25-Terminal storage and transshipment, Chair E. Nishimura**

**YARD ARRANGEMENT PROBLEM WITH CONSIDERATION OF BERTH SPACE UTILIZATION EFFICIENCY**

L.J. Wang, E. Nishimura

Kobe University, KOBE CITY, Japan

**SYSTEM EVALUATION AND STORAGE ALLOCATION PROBLEM IN GRID-ACT BASED TRANSSHIPMENT HUB**

C.H. Zhou

National University of Singapore, SINGAPORE, Singapore

**MULTIPLE-LOAD RETRIEVAL TIME MODELS IN PUZZLE-BASED STORAGE SYSTEMS**

M. Mirzaei, M.B.M. de Koster

Erasmus University, ROTTERDAM, Nederland

**MULTI-OBJECTIVE CONTAINER STORAGE ARRANGEMENT AT THE CONTAINER TERMINAL WITH POLYGON CONFIGURATION**

E. Nishimura

Kobe University, KOBE, Japan

**08.45-10.30 : Santander : 7.2 - Session 26-Warehouse order picking, Chair S. Hong**

**ALIGNING ORDER PICKING METHODS WITH INCENTIVE SYSTEMS AND PICKERS FOR PERFORMANCE**

J. de Vries, M.B.M. de Koster, D.A. Stam

RSM Erasmus University, ROTTERDAM, Nederland

**BLOCKS RELOCATION PROBLEM WITH MULTI-ITEM MOVES AND ITS TREE SEARCH PROCEDURE**

R. Zhang, S. Liu

Northeastern University, SHENYANG, China

**COMPARISON ROUTING STRATEGIES FOR A MULTIPLE-PICKER ORDER PICKING SYSTEM WITH CONGESTION CONSIDERATION BY THROUGHPUT**

J. Hwang<sup>1</sup>, D.K. Kim<sup>1</sup>, T.H. Yoon<sup>2</sup>, S.Y. Kho<sup>1</sup>

<sup>1</sup>Seoul National University, SEOUL, South-Korea

**ORDER BATCHING IN A BUCKET BRIGADE ORDER PICKING SYSTEM WITH CONSIDERATION OF PICKER BLOCKING**

S. Hong

Pusan National University, PUSAN, South-Korea

**08.45-10.30 : Shanghai : 7.3 - Session 27-Transport over rail or road, Chair L. Chen**

**CONTAINER LIFTING SYSTEM FOR EFFECTIVE OPERATION OF TRAIN FERRY SYSTEM BETWEEN KOREA AND CHINA**

J.G. Kim, J.Y. Lim, S.I. Seo, D.H. Choi

Korea Railroad Research Institute, UIWANG, South-Korea

**AN INNOVATIVE RAIL-CANAL SYSTEM FOR EFFECTIVE SHIPPING LOGISTICS**

S.I. Seo, J.Y. Lim, J.G. Kim, D.H. Choi, D.H. Kang

Korea Railroad Research Institute, UIWANG, South-Korea

**NETWORK DESIGN IN ROAD MAINTENANCE WITH FUZZY SERVICE TIME**

L. Chen<sup>1</sup>, B. Chen<sup>1</sup>, A. Langevin<sup>2</sup>

<sup>1</sup>Shanghai Jiao Tong University, SHANGHAI, China

**10.30-11.00 : Restaurant : Coffee/tea break**

11.00-12.00 : **Forum** : Panel discussion

12.00-12.30 : **Forum** : Closing and Award ceremony

**12.30-13.30 : Restaurant : Lunch**