6th Asia-Pacific International Symposium on Advanced Reliability and Maintenance Modeling (APARM 2014)

21– 23 August 2014, Sapporo, Hokkaido, Japan

at

International Conference Center, Hokkai-Gakuen University

Technical Sessions (Ver. 3)

Room A: International Conference Hall **Room B:** AV Room 2 **Room C:** AV Room 6 **Note:** 25 min per presentation (20 min speech + 5 min discussion)

Wednesday 20 August

Registration at the Lobby of International Conference Center

Welcome Reception at the Lobby of International Conference Center

Day 1 Thursday 21 August

Room A

APARM 2014 Opening: Welcome Greetings 9:00 - 9:50		Prof. Yi-Kuei Lin, General Co-chair of APARM 2014 Prof. Hisashi Yamamoto, General Co-chair of APARM 2014 Prof. Kazunori Kimura, the President of Hokkai-Gakuen University
Tea/Coffee Break 9:50 - 10:10		
Keynote Speech 1 & 2 10:10 - 11:00, 11:10 - 12:00		
Prof. Kishor S. Trivedi, Duke University, USA		Reliability and Availability Modeling in Practice
Prof. Kazuyuki Suzuki, The University of Electro-Communications , Japan		Scheme of Reliability Engineering and Effectiveness of On-Line Monitoring Maintenance
Lunch 12:00 - 13:00		
Session TA-1: Network Reliability and Optimization 13:00 - 14:40		
TA-1-1	Shin-Guang Chen	Search for All MPs in a Multi-Terminal Network
TA-1-2	Natsumi Takahashi, Hisashi Yamamoto, Xiao Xiao and Tomoaki Akiba	Network Properties of Restricting Calculated Networks in Obtaining Pareto Solutions
TA-1-3	Guanghan Bai, Ming J Zuo and Zhigang Tian	A Heuristic for Ordering *d*-MPs for Evaluation of Multistate Network Reliability
TA-1-4	Yi Chen, Natsumi Takahashi, Xiao Xiao and Hisashi Yamamoto	On the Derivation of Network Systems with Maximum All-Terminal Reliability
Tea/Coffee Break 14:40 - 15:00		

Room A

Session TA-2: Estimation and Statistical Tests 15:00 - 16:15

TA-2-1	Chih Chun Tsai and Chien-Tai Lin	Optimal Selection of the Most Reliable Design Based on Gamma Degradation
TA-2-2	Lirong Cui, Fangyu Liu and Quan Zhang	Some New Concepts and Their Computational Formulations in Aggregated Stochastic Processes with Classifications Based on Sojourn Times
TA-2-3	Chien-Wei Wu and Shih-Wen Liu	A New Variables Repetitive Group Sampling Plan Based on Process Yield

Session TA-3: Systems Reliability (1) 16:25 - 18:05

TA-3-1	Hui Xiao, Rui Peng, Bing Li and Wenbin Wang	Linear Sliding Window System with Load Dependent Failure Rate
TA-3-2	Tetsushi Yuge and Shigeru Yanagi	Failure Probability of a k-out-of-n System Considering Common-Cause Failures
TA-3-3	Yasuhiko Takemoto and Ikuo Arizono	A Study on Evaluation of MTTF in 2 Unit Standby Redundant System with Priority
TA-3-4	Hadi A. Khorshidi, Indra Gunawan and M. Yousef Ibrahim	An Unreliability Analysis for k-out-of-n:F System

Room B

Session TB-1: Warranty and Lifetime Analysis (1) 13:00 - 14:40

TB-1-1	Shuen-Lin Jeng	Warranty Analysis for the Data with Sales and Report Lag
TB-1-2	Richard Arnold, Stefanka Chukova and Yu Hayakawa	Warranty Cost Analysis: Non-Zero Geometric Repair Times
TB-1-3	Yu-Hung Chien and Chung-Piao Chiang	Analysis of Discrete-Time Age Replacement Policy for Product with Warranty
TB-1-4	Zhiqiang Lv, Weiwen Peng, Rong Yuan, Zheng Liu and Hong-Zhong Huang	An Improved Data Processing of Loading Spectrum for Applications of Rainflow Counting Method

Tea/Coffee Break 14:40 - 15:00

Session TB-2: Warranty and Lifetime Analysis (2) 15:00 - 16:15

TB-2-1	Chujie Chen, Xiangyu Li, Fan Zhang, Yu Liu and Hong-Zhong Huang	Dynamic Reliability Assessment for Multi-State Systems with Imperfect Inspection Data
TB-2-2	Huiying Gao, Shun-Peng Zhu, Zhiqiang Lv, Fang-Jun Zuo and Hong-Zhong Huang	A Novel Method for Determining the Corten-Dolan Exponent Based on the Damage and Stress States
TB-2-3	Fang-Jun Zuo, Shun-Peng Zhu, Hong-Zhong Huang, Zhiqiang Lv and Huiying Gao	Fatigue Life Prediction Using Damage Modeling under Variable Amplitude Loading

Session TB-3: Warranty and Lifetime Analysis (3) 16:25 - 17:40

TB-3-1	Watalu Yamamoto and Lu Jin	Regression Analysis of Survival Data with a Latent Variable

Room B

TB-3-2	Shikun Han, Hailin Feng and Ying Chen	Lifetime Analysis for Wireless Sensor Networks Based on Wiener Degeneration Process
TB-3-3	Minjae Park, Ki Mun Jung and Dong Ho Park	Optimal Age Replacement Policy under the Minimal Repair-Replacement Warranty Policy

Room C

Special TC-1: Special Session - Reliability Modeling with Applications (1) 13:00 - 14:40

TC-1-1	Fumio Ohi	Stochastic Bounds for Multi-state Coherent Systems via Modular Decompositions - Case of Partially Ordered State Spaces -
TC-1-2	Shinji Inoue and Shigeru Yamada	Change-Point Modeling and Detection Methods for Software Reliability Assessment Based on Hazard Rate Models
TC-1-3	Mitsutaka Kimura, Mitsuhiro Imaizumi and Toshio Nakagawa	Optimal Policy for a Server System with Hybrid Replication Method
TC-1-4	Mitsuhiro Imaizumi and Mitsutaka Kimura	Optimal Monitoring Policy for a System with Network

Tea/Coffee Break 14:40 - 15:00

Special TC-2: Special Session - Reliability Modeling with Applications (2) 15:00 - 16:15

TC-2-1	Yoshinobu Tamura, Kenta Miyaoka and Shigeru Yamada	Dependability Optimization with Two-Dimensional Wiener Processes for Cloud Computing
TC-2-2	Shey-Huei Sheu, Hsin-Nan Tsai, Fu-Kwun Wang and Zhe George Zhang	A Repair/Replacement Model with Inspections for Deteriorating System
TC-2-3	Xufeng Zhao, Cunhua Qian, Syouji Nakamura and Toshio Nakagawa	What is Middle Maintenance Policy ?

Special TC-3: Special Session - Reliability Modeling with Applications (3) 16:25 - 17:40

TC-3-1	Mingchih Chen, Min Wang and Xufeng Zhao	Which Standby or Parallel System is More Useful in Reliability Theory
TC-3-2	Satoshi Mizutani, Xufeng Zhao and Toshio Nakagawa	Overtime Replacement Policies for Finite Running Intervals
TC-3-3	Alfonsus Julanto Endharta and Won Young Yun	A Condition-Based Maintenance of Linear Consecutive-k-out-of-n: F Systems

Day 2 Friday 22 August

Room A

Session FA-1: Systems Reliability (2) 8:10 - 9:50

FA-1-1	Yi-Kuei Lin, Cheng-Fu Huang and Cheng-Ta Yeh	System Reliability with the Spoilage Property for a Stochastic-Flow Distribution Network
FA-1-2	Yi-Kuei Lin, Ping-Chen Chang and Shin-Ying Li	Fuzzy Reliability of a Labor-Intensive Manufacturing Network with Repair
FA-1-3	Richard Arnold, Stefanka Chukova, Yu Hayakawa and Ivy Liu	Joint Modelling of Failure Times and Severities Using Fuzzy Clustering
FA-1-4	Dejing Kong, Lirong Cui and Fangyu Liu	Bayesian Inference of Multi-Stage Reliability for Degradation Systems with Calibrations

Tea/Coffee Break 9:50 - 10:10

Keynote Speech 3 & 4 10:10 - 11:00, 11:10 - 12:00

Mr. Nobuo Takeuchi, Japan Aerospace Exploration Agency (JAXA), Japan	Future of Safety and Mission Assurance Activity in Japanese Space Development
Prof. Takahiro Yamanoi, Hokkai-Gakuen University, Japan	Reliability of Dipole Estimation of EEGs for Elucidation of Brain Function and Their Applications

Lunch 12:00 - 13:00

Room A

Session FA-2: Systems Reliability (3) 13:00 - 14:40

FA-2-1	Chao Zhang, Shaoping Wang and Fang Wang	Performance Degradation Simulation of High-Speed Gearbox Based on Heat Network
FA-2-2	Jinhua Mi, Yanfeng Li, Yu Liu, Weiwen Peng and Hongzhong Huang	Non-probabilistic Reliability Analysis of Multi-State Systems Subject to Common Cause Failure
FA-2-3	Hideo Hirose, Masakazu Tokunaga, Takenori Sakumura, Junaida Sulaiman and Herdianti Darwis	Matrix Approach for the Seasonal Infectious Disease Spread Prediction
FA-2-4	Zheng Liu, Jinhua Mi, Zhiqiang Lv, Zhonglai Wang and Hong-Zhong Huang	A Second-Order Reliability Prediction Model based on Imprecise Probability Theory

Tea/Coffee Break 14:40 - 15:00

Session FA-3: Systems Reliability (4) 15:00 - 17:05

FA-3-1	Naoki Yoshida, Hisashi Yamamoto, Koji Shingyochi, Tomoaki Akiba and Xiao Xiao	Efficient Simulated Annealing Algorithms for Optimal Arrangement Problems in a Multi-State Consecutive-k-out-of-n:F System
FA-3-2	Masayo Yamashita, Keiichi Nishimura and Kazuyuki Suzuki	Three Basic Phases for Problem-Solving
FA-3-3	Toru Omura, Hisashi Yamamoto, Tomoaki Akiba and Xiao Xiao	On the Optimal Arrangement of Connected-(r,s)-out-of-(m,n):F System, When $m = r$ and $s = 2$

	FA-3-4	Dong-Hyeon Kim, Sukhoon Lee and Jae-Hak Lim	Reliability Analysis of Complex System with a Multi-Functional Standby Component under Weibull Failure Distribution
	FA-3-5	Jiang-Liang Hou and Chieh-An Liao	Augmented Reality of Contextual Content for Representing Reliability of Searched Content
Room B	**Session FB-1:** Bayesian Reliability 8:10 - 9:50		
	FB-1-1	Chien-Yu Peng	Inverse Gaussian Processes with Random Effects and Explanatory Variables for Degradation Data
	FB-1-2	Mohamed Ghitany	Poisson-Mixed Inverse Gaussian Regression Model and Its Application
	FB-1-3	Il Young Yang, Jung Won Park and Suk Joo Bae	Bayesian Parameter Estimation of Strength Distribution for Highly Accelerated Life Testing Data
	FB-1-4	Byeong Min Mun and Suk Joo Bae	Bayesian Estimation for Drop Fragility of Smart Mobile Phone Display
	Tea/Coffee Break 9:50 - 10:10		
	Keynote Speech 10:10 - 12:00 See **Room A**		
	Lunch 12:00 - 13:00		
	Session FB-2: Accelerated Life Testing 13:00 - 14:40		
	FB-2-1	Ronghua Wang, Xiaoling Xu and Beiqing Gu	Bayesian Statistical Analysis of Type-I Censoring Masked Data of Series System under Step-Stress Accelerated Life Test - Failure Rate of Two Units Are Equal Constant
	FB-2-2	Xiaoling Xu, Ronghua Wang and Beiqing Gu	Statistical Analysis of Type-I Censoring Masked Data of Parallel System under Step-Stress Accelerated Life Test - Unit Life Submits to the Inverse Exponential Distribution
	FB-2-3	Ancha Xu, Yincai Tang and Qiang Guan	Planning Simple Step-Stress Sccelerated Life Tests Using Reference Optimality Criterion
	FB-2-4	Cheng-Chieh Chou and Chien-Tai Lin	Planning Step-Stress Test Plans under Type-I Hybrid Censoring for the Log-Location-Scale Distribution
	Tea/Coffee Break 14:40 - 15:00		
	Session FB-3: Software Reliability and Testing (1) 15:00 - 17:05		
	FB-3-1	Yasuhiro Saito and Tadashi Dohi	Nonparametric Maximum Likelihood Estimation of NHPP-Based Software Reliability Model
	FB-3-2	Yasuhiro Saito, Tadashi Dohi and Won Young Yun	A Kernel-Based Estimation for a Block Replacement Problem with Minimal Repair
	FB-3-3	Hyunju Lee, Ji Hwan Cha and Nikolaos Limnios	Semi-Markov Shock Models
	FB-3-4	Takahiro Imanaka and Tadashi Dohi	Burr XII Distribution-based Software Reliability Modeling

	FB-3-5	Xiao Xiao	On Applying Marshall-Olkin Distribution to NHPP-Based Software Reliability Modeling
Room C	**Special FC-1:** Special Session - Reliability Modeling with Applications (4) 8:10 - 9:50		
	FC-1-1	Weiwen Peng, Yuan-Jian Yang, Yan-Feng Li and Hong-Zhong Huang	Degradation Aanalysis with an Inverse Gaussian Process Model Considering an S-Shaped Degradation Rate
	FC-1-2	Won Young Yun, Young Jin Han, Li Liu and Ha Won Kim	Optimal Inspection Intervals for Multi One-Shot Systems
	FC-1-3	Kodo Ito and Toshio Nakagawa	Optimal Maintenance Policies of Airframe
	FC-1-4	Kenichiro Naruse and Toshio Nakagawa	Optimal Checkpoint Times for Redundant Arrays Inexpensive Computer Nodes(RAICN)
	Tea/Coffee Break 9:50 - 10:10		
	Keynote Speech 10:10 - 12:00 See **Room A**		
	Lunch 12:00 - 13:00		
	Session FC-2: Maintenance Modeling and Optimization (1) 13:00 - 14:40		
	FC-2-1	Richard Arnold, Stefanka Chukova and Yu Hayakawa	Failure Distributions in Multicomponent Systems with Imperfect Repairs
	FC-2-2	Sima Varnosafaderani, Stefanka Chukova and Richard Arnold	Modeling General Repairs of a System with a Bathtub-Shaped Failure Rate Function
	FC-2-3	Tomohiro Kitagawa, Tetsushi Yuge and Shigeru Yanagi	Optimum Periodic Inspection Interval and Replacement Policies for a One-Shot System with Minimal Repair
	FC-2-4	Xufeng Zhao, Cunhua Qian and A.M.S. Hamouda	Note on Several Newly Proposed Age Replacement Policies
	Tea/Coffee Break 14:40 - 15:00		
	Session FC-3: Maintenance Modeling and Optimization (2) 15:00 - 17:05		
	FC-3-1	Chun-Ho Wang and Chao-Hui Huang	Optimization of a Multi-State Preventive Maintenance Model to Maximize System Availability from the Perspective of a System's Components
	FC-3-2	Hideo Hirose, Naoki Tabuchi and Takeru Kiyosue	Mathematical Deterioration Model Derivation for the Thermal Stress: Generalized Pareto Distribution
	FC-3-3	Mimi Zhang, Min Xie and Olivier Gaudoin	Applying the Improvement Factor Method to the Degradation Rate
	FC-3-4	Chauchen Torng, Shengpei Chung and Haiwei Kwung	Combining Dynamic Reliability and the Markovian Preventive Maintenance Model for Liver Treatment
	FC-3-5	Jong-Woon Kim	A Simulation Model for Determining the Times of Overhauls and the Number of Spare Parts for Repairable Items in Rolling Stocks
Banquet in Sapporo Park Hotel 18:00 - 21:00			

Day 3 Saturday 23 August

Room A

Session SA-1: System Optimization Methods 8:10 - 10:15

SA-1-1	Zhiqiang Cai, Weitao Si, Shubin Si and Caitao Li	An Improved Genetic Algorithm Based Heuristic Method for the Component Assignment Problem
SA-1-2	Wen Liang Chang, Ruey Huei Yeh, Po-Chin Chen and Wei-Chun Hung	An Improved Genetic Algorithm for Solving the Traveling Salesman Problem
SA-1-3	Peiya Song, Xianda Kong, Hisashi Yamamoto, Jing Sun and Masayuki Matsui	Optimal Worker Assignment in Limited-Cycled Model with Risk among Multiple Periods
SA-1-4	Xianda Kong, Hisashi Yamamoto, Peiya Song, Jing Sun and Masayuki Matsui	Optimal Worker Assignment in Limited-Cycled Model with Multiple Periods - Considering Continuous Delay as Risk -
SA-1-5	Junji Koyanagi and Yasuhiro Hikino	An On-Demand Bus Model with a Center of Local Area

Room B

Session SB-1: Software Reliability and Testing (2) 8:10 - 10:15

SB-1-1	Mitsuhiro Kimura and Kotaro Ueda	3-Dimensional Software Testing-Progress Assessment Model Based on a Non-Stationary Gaussian Copula
SB-1-2	In Hong Chang, Hoang Pham, Seung Woo Lee and Kwang Yoon Song	A Reliability Model with Hardware and Software Failures
SB-1-3	Hiroyuki Okamura, Yuki Takekoshi and Tadashi Dohi	Fine-Grained Software Reliability Estimation Using Software Testing Inputs
SB-1-4	Hiroyuki Okamura and Tadashi Dohi	Maximum Penalized Likelihood Estimation for Phase-Type Software Reliability Growth Model
SB-1-5	Chao Luo, Hiroyuki Okamura and Tadashi Dohi	Optimized Patch Applying Schedule within Multiplex Software Architecture

Room C

Session SC-1: Maintenance Modeling and Optimization (3) 8:10 - 10:15

SC-1-1	Jung-Hua Lo and Yu-Chia Chen	An Approach to Software Development Cost Estimation in Taiwan
SC-1-2	Lu Jin and Undarmaa Bayarsaikhan	Optimal Maintenance Policy for Age-Dependent Markov Deteriorating Systems under Partially Observation
SC-1-3	Won Young Yun, Qian Qian Zhao and Ha Won Kim	Optimal Inspection Schedules for One-Shot System in Storage with Deployment Plan
SC-1-4	Chun-Yuan Cheng, Te-Hsiu Sun and Jr-Tzung Chen	The Optimal Policy of Mixed Preventive Maintenance Models in a Finite Time Period
SC-1-5	Hennie Husniah and Bermawi P. Iskandar	Performance-Based Maintenance Contract with Imperfect Preventive Maintenance

Excursion Tour 10:30 - 18:00

Sushi Dinner (optional) - 21:00