



## 2022 RIMS Workshop

### Mathematical Decision Making Under Uncertainty and Related Topics

Organizer Yoshinobu Tamura (Yamaguchi University)

31 October – 2 November, 2022

Room 111 of Research Institute for Mathematical Sciences, Kyoto University

Programme (honorifics omitted, \*:speaker)

Monday, 31 October

10:00~10:10 Opening

Chair: Yutaka Kimura (Akita Prefectural University)

10:10~10:40 \*Yutaka Kimura (Akita Prefectural Univ.), Seiichi Iwamoto (Kyushu Univ. Professor Emeritus)

Gibonacci Optimization — Duality —

10:40~11:10 \*Kaita Tameshima (Akita Prefectural Univ.), Yousuke Araya (Akita Prefectural Univ.), Mitsuhiro Hoshino (Akita Prefectural Univ.), Yutaka Kimura (Akita Prefectural Univ.)

Extension to multi-dimensional of regret robustness

Chair: Tsuyoshi Saito (Aichi University)

11:20~11:50 \*Yousuke Araya (Akita Prefectural Univ.)

Nonlinear scalarization in set optimization problem: progress during the past 20 years

11:50~12:20 \*Tsuyoshi Saito (Aichi Univ.)

A plan of hedging management risk for tourism facilities by using exchange rate

Lunch

Chair: Toshiharu Fujita (Kyushu Institute of Technology)

13:50~14:20 \*Masamichi Kon (Hirosaki Univ.)

Characterization of fuzzy order relation by fuzzy cone

14:20~14:50 \*Toshiharu Fujita (Kyushu Institute of Technology)

Decision Process Model on Converging Branch System — Max-Add Criterion —

Chair: Toshikazu Watanabe (Tokyo University of Information Sciences)

15:00~15:30 \*Shoichiro Miyamoto (Yamaguchi Univ.), Yoshinobu Tamura (Yamaguchi Univ.), Shigeru Yamada (Tottori Univ. Professor Emeritus)

A Method of Reliability Assessment Based on Deep Learning for Public Software Repository

15:30~16:00 \*Toshikazu Watanabe (Tokyo Univ. of Information Sciences)

On the common fixed point theorem of asymptotic maps and its applications

Tuesday, 1 November

Chair: Setsuko Sakai (Hiroshima Shudo University)

10:00~10:30 \*Lei Zhou (Yamaguchi Univ.), Hisashi Yamamoto (Tokyo Metropolitan Univ.)

Reliability evaluation of consecutive  $k$ -system considering shock

10:30~11:00 \*Setsuko Sakai (Hiroshima Shudo Univ.), Tetsuyuki Takahama (Hiroshima City Univ.)

Improving a Real-Coded Genetic Algorithm Using an Outward Vector Rate and Parallelotope-Shaped Crossover

Chair: Hideaki Takagi (Tsukuba University)

- 11:10~11:40 \*Hideaki Takagi (Tsukuba Univ. Professor Emeritus), Yuta Kanai (SUBARU CORPORATION)  
Operational analysis of the pediatric patient flow in a hospital
- 11:40~12:10 \*Nao Yasunaga (Osaka Prefecture Univ.), Hitoshi Hohjo (Osaka Metropolitan Univ.)  
A Study on Win Probability Prediction and Decision Making in Baseball Using Tree-Structured Neural Network
- Lunch
- Chair: Hiroyuki Okamura (Hiroshima University)
- 13:40~14:10 \*Hironobu Sone (Yamaguchi Univ.), Yoshinobu Tamura (Yamaguchi Univ.), Shigeru Yamada (Tottori Univ. Professor Emeritus)  
Prediction of Fault Fixing Time Transition and Practical Feasibility Study for Open Source Projects
- 14:10~14:40 \*Siqiao Li (Hiroshima Univ.), Tadashi Dohi (Hiroshima Univ.), Hiroyuki Okamura (Hiroshima Univ.)  
A Summary of NHPP-based Software Reliability Modeling with Lindley-type Distributions
- Chair: Lei Zhou (Yamaguchi University)
- 14:50~15:20 \*Wu Jing (Hiroshima Univ.), Cunhua Qian (Nanjing Tech Univ.), Tadashi Dohi (Hiroshima Univ.)  
Optimal two-stage opportunity-based age replacement policies in discrete time
- 15:20~15:50 \*Jingchi Wu (Hiroshima Univ.), Tadashi Dohi (Hiroshima Univ.), Hiroyuki Okamura (Hiroshima Univ.)  
Analysis of Software Failure-time Series by Daubechies Wavelet
- 15:50~16:20 \*Yasuhiro Saito (Japan Coast Guard Acad.), Kenshin Ichianagi (Japan Coast Guard Acad.), Takuma Hirosawa (Japan Coast Guard Acad.), Kousei Yamamoto (Japan Coast Guard Acad.)  
Determination of track spacing in Maritime Search Planning Method

Wednesday, 2 November

- Chair: Masayuki Horiguchi (Kanagawa University)
- 10:00~10:30 \*Yuya Kikuchi (Kanagawa Univ.), Masayuki Horiguchi (Kanagawa Univ.)  
On a discriminant analysis for managing states of corporation and its validity of estimated classification criteria
- 10:30~11:00 \*Yuji Yoshida (Univ. of Kitakyushu Professor Emeritus)  
Risk-Sensitive Markov Decision Making with Coherent Risk Measures
- Chair: Hiroaki Kuwano (Kanazawa Gakuin University)
- 11:10~11:40 \*Hidefumi Kawasaki (Kyushu Univ. Professor Emeritus)  
Applications of zero-point theorems to game theory and convex analysis
- 11:40~12:10 \*Hiroaki Kuwano (Kanazawa Gakuin Univ.)  
A robust approach for fuzzy linear programming problems
- Lunch
- Chair: Shinji Inoue (Kansai University)
- 13:40~14:10 \*Shinji Inoue (Kansai Univ.), Shigeru Yamada (Tottori Univ. Professor Emeritus)  
On Proof-Testing Intervals for E/E/PE Safety-Related System
- 14:10~14:40 \*Yoshinobu Tamura (Yamaguchi Univ.), Shigeru Yamada (Tottori Univ. Professor Emeritus)  
Optimal Maintenance Problem Considering Multi Scenarios of Effort Control in Edge OSS Up-gradation
- 14:40~14:50 Closing