

## M02 Maintenance Modelling and Optimization

Monday 9/17/2018 10:30 AM Discovery

Chair: M. Pourgol-Mohammad

- 31 **Dynamic Sequential Decision Making for Missions and Maintenances Scheduling for a Deteriorating Vehicle**  
Elodie Robert (a,b), Christophe Berenguer (a), Keomany Bouvard, Hoceane Tedie (b), and Romain Lesobre (c)  
*a) Univ. Grenoble Alpes, CNRS, Grenoble INP\*\*, GIPSA-lab, F-38000 Grenoble, France, b) Volvo Group Trucks Technology, 69800 Saint-Priest, France, c) ARQUUS, 78284 Guyancourt, France*
- 192 **A Methodology for Railway Track Maintenance Modelling Using Plausible Petri Nets**  
Manuel Chiachio (a,b), Juan Chiachio, Darren Prescott, John Andrews (a)  
*a) Resilience Engineering Research Group, Faculty of Engineering, University of Nottingham, University Park, Nottingham, (UK), b) Dept. of Structural Mechanics & Hydraulics Engineering, University of Granada, Granada, (Spain)*
- 256 **Probabilistic Maintenance Optimization for Fatigue-critical Components with Constraint in Repair Access and Logistics**  
Guang Zou (a,b), Kian Banisoleiman (a), and Arturo González (b)  
*a) Lloyd's Register Group Limited, Southampton, UK, b) University College Dublin, Dublin, Ireland*

## M03 Reliability Analysis I

Monday 9/17/2018 10:30 AM Illumination

Chair: Marcio Moura

- 7 **New Components Reliability Demonstration for Subsea Factory**  
A.Di Padova, F.Tallone (a), G.Cassetti, M.Piccini (b)  
*a) Saipem S.p.A. - Onshore E&C Plant and Floaters Division, Fano, Italy, b) RAMS&E, Torino, Italy*
- 30 **Modeling the Effect of Air Temperature and Pressure on the Reliability of a Passive Containment Cooling System**  
Yu Yu (a), Francesco Di Maio (b), Enrico Zio (b,c), Bin Wang, Shengfei Wang, Zhangpeng Guo, Xuefeng Lyu, And Fenglei Niu (a)  
*a) School of Nuclear Science and Engineering, Beijing Key Laboratory of Passive Safety Technology for Nuclear Energy, North China Electric Power University, Beijing, China, b) Energy Department, Politecnico di Milano, Milan, Italy, c) Chair on System Science and Energetic Challenge, European Foundation for New Energy – EDF, Ecole Centrale de Paris and Supélec, Paris, France*
- 32 **Development of Software Test-based Reliability Assessment Method for Nuclear Power Plant Safety-critical Software**  
Sang Hun Lee (a), Seung Jun Lee (b), Jinkyun Park (c), Eun-chan Lee (d), and Hyun Gook Kang (a)  
*a) Department of Mechanical Aerospace and Nuclear Engineering, Rensselaer Polytechnic Institute (RPI), Troy, NY, USA, b) School of Mechanical, Aerospace and Nuclear Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, Republic of Korea, c) Integrated Safety Assessment Division, Korea Atomic Energy Research Institute (KAERI), Daejeon, Republic of Korea, d) Korea Hydro & Nuclear Power Co., Ltd., Gyeongsangbuk-do, Republic of Korea*
- 74 **System Reliability Analysis and Probabilistic Safety Assessment to Support the Design of a New Containment Cooling System for Severe Accident Management at NPP Paks**  
Tamas Siklossy, Attila Bareith, David Hollo, Zoltan Karsa, Gabor Lajtha, Jenő Nigicser, Peter Siklossy  
*NUBIKI Nuclear Safety Research Institute, Budapest, Hungary*

## M04 Risk and Hazard Analysis I

Monday 8/17/2018 10:30 Legacy A

Chair: Nathan Siu

- 23 **Assessing Combinations of Hazards in a Probabilistic Safety Analysis**  
Halbert Taekema, and Hans Brinkman  
*NRG, Arnhem, The Netherlands*
- 27 **Modelling of Failures of Multiple Redundant Trains of the Electrical Power Supply System of NPPs in PSA**  
B. Brück, G. Gänßmantel, A. Kreuser, C. Müller, E. Piljugin, M. Utschick, and J. C. Stiller  
*Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) gGmbH, Köln, Germany*
- 64 **Assessment of Rockfall Hazard Induced by Earthquake for Important Facility**  
I.Yoshida, Y.Kasuga (a), M.Sato, H.Nakase (b), and S.Nakamura (c)  
*a) Tokyo City University, Tokyo, Japan, b) Tokyo Electric Power Services Co.,Ltd, Tokyo, Japan, c) Nihon University, Koriyama, Japan*
- 17 **A Tool to Support Improved Outage Risk Management**  
Shawn St. Germain and Jaques Hugo  
*Idaho National Laboratory, Idaho Falls, USA*

# M05 Risk Assessment Methods I

Monday 8/17/2018 10:30 AM Legacy B

Chair: Luiz Oliveira

- 12
- A Bayesian Solution to Incompleteness in Probabilistic Risk Assessment**  
Chris Everett (a), Homayoon Dezfuli (b)  
*a) ISL, New York, NY, USA, b) NASA, Washington, DC, USA*
- 59
- Adapting Traditional Logic Modeling Techniques to Address Cyberattack**  
R. Youngblood and K. Le Blan  
*Idaho National Laboratory, Idaho Falls, Idaho*
- 62
- Pathology-Informed Approach in Vulnerability Assessment Methods**  
Polinpapilinho F. Katina (a,b,c), Adrian V. Gheorghe (b) and Charles B. Keating (a,b)  
*a) National Centers for System of Systems Engineering, Norfolk, Virginia, USA, b) Old Dominion University, Norfolk, Virginia, USA, c) Embry-Riddle Aeronautical University, Worldwide Campus*
- 403
- Risk Assessment Methods for Comparative Assessment of Options for Decommissioning of Subsea**  
Luiz Fernando Oliveir\*, Joaquim Domingues, Mariana Bardy, Thábata Maciel, and Silvia Schaffel  
*DNV GL, Rio de Janeiro, Brazil*

# M06 Water and Land Transportation I

Monday 8/17/2018 10:30 AM Pathways

Chair: Di Zhang

- 50
- Risk Analysis of Ship Foundering Using the Hybrid Causal Logic Methodology**  
Kai Zhang, Di Zhang, Cun-long Fan, Ming-yang Zhang (a,b) and Ali Mosleh (c)  
*a) Intelligent Transportation Systems Research Center, Wuhan University of Technology, Wuhan, Wuhan, P.R. China, b) National Engineering Research Center for Water Transport Safety, Wuhan, P. R. China, c) The B. John Garrick Institute for the Risk Sciences at UCLA, L.A., USA*
- 120
- A Game-Theoretic Method to Efficiently Assess the Vulnerability of a Dynamic Transportation Network**  
Venkateswaran Shekar, Lance Fiondella (a), Samrat Chatterjee, and Mahantesh Halappanavar (b)  
*a) University of Massachusetts Dartmouth, USA, b) Pacific Northwest National Laboratory, Richland, USA*
- 186
- Producing Effective Maintenance Strategies to Control Railway Risk**  
Claudia Fecarotti and John Andrews  
*Resilience Engineering Research Group, Faculty of Engineering, University of Nottingham, Nottingham, UK*
- 152
- Risk Simulation Analysis of the Vehicle Velocity in Reduced Visibility Conditions at Bridge-Tunnel Transition Sections**  
Dianliang Xiao (a), Yujia Tian (b), and Yong Fang (c)  
*a) Safety and Emergency Research Center, China Academy of Transportation Sciences, Beijing, China, b) School of Highway, Chang'an University, Xi'an, China, c) The Key Laboratory of Road and Traffic Engineering of the Ministry of Education, Tongji University, Shanghai, China*

# M07 Risk Informed Applications I

Monday 8/17/2018 10:30 AM Laureatte

Chair: Fernando Ferrante

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- Development of Approach to Establishment of Risk Informed Accident Management and Management Class in Severe Accident**  
Shinya Kamata (a), Nobuyuki Ueda (b)  
*a) Japan Nuclear Safety Institute, Tokyo, Japan, b) Central Research Institute of Electric Power Industry, Tokyo, Japan*
- 79
- Generic Safety Issue 191: Risk Informed Application at South Texas Project**  
Mary Anne Billings, Kristin Kaspar (a), and Ernest John Lowry Kee (b)  
*a) STP Nuclear Operating Company, Wadsworth, USA, b) University of Illinois, Urbana-Champaign, USA*
- 137
- Application of Probabilistic Risk Assessment to Cyber Security of a Nuclear Power Plant**  
Jong Woo Park, Seung Jun Lee  
*Ulsan National Institute of Science and Technology (UNIST), Ulsan, Korea*
- 37
- Surveillance Frequency Control Program Implementing Insights**  
Zhiping Li (a,b), Mary Anne Billings (b)  
*a) Ameren Missouri, Fulton, USA, b) STP Nuclear Operating Company, Wadsworth, USA*