CONFERENCE PROGRAM

23RD ISSAT INTERNATIONAL CONFERENCE

RELIABILITY and QUALITY in DESIGN

CHICAGO, ILLINOIS, U.S.A. ★ AUGUST 3 – 5, 2017

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Keynote Speaker

Reliability Engineering Challenges in Aerospace Industry

Dr. Vladimir Crk

Engineering Fellow, UTC Aerospace Systems

UTC Aerospace Systems (UTAS) is a division of the United Technologies Corporation, a worldwide leader in design, development and manufacturing of the complex integrated systems for the commercial and military aerospace, as well as NASA space programs. This talk will focus on numerous challenges UTAS reliability engineers are currently faced with. They result from the fact that the systems hardware and software are extremely complex, design reliability requirements and dispatch reliability requirements continuously increase with the expectation that disruptions, delays and flight cancellations, as well as the cost of the ownership are minimized.

Awards

ISSAT RQD 2016 Best Paper Award

System Reliability for a Fast Retransmit through Two Separate Quickest Paths under the Time Constraint

Cheng-Fu Huang *(Feng Chia University, Taiwan)*
Yi-Kuei Lin *(National Taiwan University of Science and Technology, Taiwan)*

ISSAT RQD 2016 Best Student Paper Award

Expectation Conditional Maximization Algorithms for Failure Count Non-homogeneous Poisson Process Software Reliability Models

Vidhyashree Nagaraju *(University of Massachusetts Dartmouth, USA)*
Anusha Krishna Murthy *(University of Massachusetts Dartmouth, USA)*
Lance Fiondella *(University of Massachusetts Dartmouth, USA)*
Panlop Zeephongsekul *(RMIT University, Australia)*
Thierry Wandji *(Naval Air Systems Command, USA)*

Conference at a Glance

THURSDAY, AUGUST 3	FRIDAY, AUGUST 4	SATURDAY, AUGUST 5
8:00 - 9:00 Registration / Continental Breakfast Roosevelt Foyer	8:00 - 8:30 Registration / Continental Breakfast Roosevelt Foyer	8:00 - 8:30 Registration / Continental Breakfast Roosevelt Foyer
9:00 - 9:15 Welcome - Awards Presentation Roosevelt 3	8:30 - 10:00 Technical Sessions Roosevelt 1 & 3	8:30 - 10:30 Technical Sessions Roosevelt 1 & 3
9:15 - 10:00 Keynote Speech Roosevelt 3	10:00 - 10:15 Coffee Break Roosevelt Foyer	10:30 Adjourn!
10:00 - 10:30 Coffee Break Roosevelt Foyer	10:15 - 11:45 Technical Sessions Roosevelt 1 & 3	
10:30 - 12:00 Technical Sessions Roosevelt 1 & 3	12:00 - 1:00 Conference Luncheon Randolph 1	
1:15 - 2:45 Technical Sessions Roosevelt 1 & 3	1:15 - 2:45 Technical Sessions Roosevelt 1 & 3	
2:45 - 3:00 Coffee Break Roosevelt Foyer	2:45 - 3:00 Coffee Break Roosevelt Foyer	
3:00 - 5:00 Technical Sessions Roosevelt 1 & 3	3:00 - 4:30 Technical Sessions Roosevelt 1 & 3	
5:30 - 7:00 Welcome Reception Plaza Ballroom		

Technical Sessions at a Glance

Thursday, Aug. 3	ROOSEVELT 3		ROOSEVELT 1	
	Session No. / Title		Session No. / Title	
10:30 - 12:00	1	Statistical Reliability Modeling & Applications	2	Network Reliability & Modeling
1:15 - 2:45	3	Reliability in Design and Optimization	4	Software Reliability Measurement and Assessment
3:00 - 5:00	5	Maintenance Optimization and Applications	6	Accelerated Degradation Tests and Modeling

Friday, Aug. 4	ROOSEVELT 3		ROOSEVELT 1	
	Session No. / Title		Session No. / Title	
8:30 - 10:00	7	Software Engineering, Reliability and Security Analysis	8	System Reliability and Maintenance Optimization
10:15 – 11:45	9	Reliability/Maintenance Modeling and Applications	10	Reliability, Safety and Risk Assessment
1:15 - 2:45	11	Software and System Reliability Modeling & Applications	12	Engineering Reliability and Applications
3:00 - 4:30	13	Reliability Analysis and Optimization	14	Performance Modeling and Simulation

Saturday, Aug. 5	ROOSEVELT 3		ROOSEVELT 1	
	Session No. / Title		Session No. / Title	
8:30 - 10:30	15	Integrated Reliability and Safety Analysis	16	Reliability Optimization

Technical Sessions

SESSION 1: Statistical Reliability Modeling & Applications
Chair: Prof. D. Gary Harlow *(Lehigh University, USA)*

Analyzing Visitors' Characteristics in Tourist Areas Based on Mobile Phone Users' Location Data

> Masahide Yamamoto *(Nagoya Gakuin University, Japan)*

The ELECTRE I Method to Optimise GPR Data Processing Analyses for Maintenance of Water Networks

> Silvia Carpitella *(University of Palermo, Italy)*
> Silvia J. Ocana-Levario *(Universitat Politècnica de València, Spain)*
> Julio Benítez *(Universitat Politècnica de València, Spain)*
> Antonella Certa *(University of Palermo, Italy)*
> Mario Enea *(University of Palermo, Italy)*
> Joaquín Izquierdo *(Universitat Politècnica de València, Spain)*

Importance Analysis for Typical Parts of Civil Airplane Slat Considering Performance Degradation

> Changcong Zhou *(Northwestern Polytechnical University, China)*
> Chenghu Tang *(Northwestern Polytechnical University, China)*
> Fuchao Liu *(Northwestern Polytechnical University, China)*
> Zheng Zhang *(Northwestern Polytechnical University, China)*

Empirical Confidence Bounds

> D. Gary Harlow *(Lehigh University, USA)*

SESSION 2: Network Reliability & Modeling
Chair: Prof. Yi-Kuei Lin *(National Taiwan University of Science & Technology, Taiwan)*

Markov Chain Monte Carlo Approach for Burr Type XII Distribution

> Jianping Zhu *(Northeast Petroleum University, China)*
> Hua Xin *(Northeast Petroleum University, China)*
> Junge Sun *(Xiamen University, China)*

Tzong-Ru Tsai *(Tamkang University, Taiwan)*

A Practical Preventive Maintenance for Aging Multi-State K-out-of-n Systems

> Chun-Ho Wang *(National Defense University, Taiwan)*
> Chao-Hui Huang *(R.O.C. Naval Academy, Taiwan)*

System Reliability Estimation for a Manufacturing Network with Joint Buffers

> Ping-Chen Chang *(National Quemoy Univ., Taiwan)*
> Yi-Kuei Lin *(National Taiwan Univ of Sci & Tech, Taiwan)*

Stochastic Flow Distribution Network of Multiple Sinks with Inventory Consideration

> Cheng-Fu Huang *(Feng Chia University, Taiwan)*
> Yi-Kuei Lin *(National Taiwan Univ of Sci & Tech, Taiwan)*
> Man-Ju Chuang *(National Taiwan Univ of Sci & Tech, Taiwan)*

SESSION 3: Reliability in Design and Optimization
Chair: Dr. Feng-Bin Sun *(Tesla Motors, USA)*

Time-Dependent Global Reliability Sensitivity Analysis of Mechanisms with Correlated Random Input Variables

> Pengfei Wei *(Northwestern Polytechnical University, China)*
> Wenxuan Wang *(Northwestern Polytechnical University, China)*

Framing Reliability Specification in Early Design Phase of Subsea Systems

> Juntao Zhang *(Norwegian University of Science and Technology, Norway)*
> Yiliu Liu *(Norwegian University of Science and Technology, Norway)*
> Mary Ann Lundteigen *(Norwegian University of Science and Technology, Norway)*

A Goal Programming Model for Network Reliability Design Problem

> Seyedmohsen Hosseini *(Center for Logistics, Trade, and Transportation, USA)*

MD Sarder *(Bowling Green State University, USA)*

Ahmed Islam *(Center for Logistics, Trade, and Transportation, USA)*

Time-Dependent Meta-Models for Dynamic Systems with Nonparametric Excitations

Gordon J. Savage *(University of Waterloo, Canada)*

Young Kap Son *(Andong National University, South Korea)*

A Hybrid Approach to Identify the Maximum Likelihood Estimates of a Two Changepoint Goel-Okumoto Software Reliability Growth Model

Vidhyashree Nagaraju *(University of Massachusetts Dartmouth, USA)*

Lance Fiondella *(University of Massachusetts Dartmouth, USA)*

Thierry Wandji *(Naval Air Systems Command, USA)*

Change-Point Modeling for Software Reliability Assessment under Imperfect Debugging Environment

Shinji Inoue *(Kansai University, Japan)*

Hiroyuki Inaba *(Tottori University, Japan)*

Shigeru Yamada *(Tottori University, Japan)*

Software Reliability Modeling with Considerations of Two-Phase Imperfect Debugging and Fault Removal

Mengmeng Zhu *(Rutgers University, USA)*

Hoang Pham *(Rutgers University, USA)*

On Bayesian Estimation for Software Reliability Assessment Based on a Discrete NHPP Model

Shinji Inoue *(Kansai University, Japan)*

Shigeru Yamada *(Tottori University, Japan)*

Age Replacement Policies with Shortage and Excess Costs

Mingchih Chen *(Fu Jen Catholic University, Taiwan)*

Xufeng Zhao *(Qatar University, Qatar)*

Toshio Nakagawa *(Aichi Institute Of Technology, Japan)*

Three Maintenances for Age Replacement Policies

Xufeng Zhao *(Qatar University, Qatar)*

Khalifa N. Al-Khalifa *(Qatar University, Qatar)*

Cunhua Qian *(Nanjing Tech University, China)*

Toshio Nakagawa *(Aichi Institute Of Technology, Japan)*

Optimal Maintenance Strategy for Second-hand Product Under Repair-replacement Policy

Minjae Park *(Hongik University, Korea)*

Ki Mun Jung *(Kyungsung University, Korea)*

Dong Ho Park *(Hallym University, Korea)*

A Survey of Continuous Failure Rates and Their Applications to Replacement Policies

Toshio Nakagawa *(Aichi Institute Of Technology, Japan)*

Xufeng Zhao *(Qatar University, Qatar)*

Cumulative Backup Policies for Database Systems

Shouji Nakamura *(Kinjo Gakuin University, Japan)*

Masashi Yamakawa *(Kinjo Gakuin University, Japan)*

Xufeng Zhao *(Qatar University, Qatar)*

Design an Optimal Plan of Accelerated Degradation Test with Acceleration Factor Constant Principle

Hao-Wei Wang *(Naval Aeronautical and Astronautical University, China)*

Fei Teng *(Naval Aeronautical and Astronautical University, China)*

Planning Optimal Degradation Tests in Consideration of Budget and Statistic Accuracy on Different Stress Levels

Zeljana Beslic *(University of Stuttgart, Germany)*

Peter Müller *(University of Stuttgart, Germany)*

Shuang Yan *(University of Stuttgart, Germany)*

Bernd Bertsche *(University of Stuttgart, Germany)*

Acceleration Reliability Growth Tests under Double-stresses

Jinyong Yao *(Beihang University, China)*
Hao Wu *(Beihang University, China)*
Yiliu Liu *(Norwegian University of Science and Technology, Norway)*
Xiangfen Wang *(Beihang University, China)*

Estimating Activation Energy of the LiFePO4 Battery Using Dual Dynamic Stress Accelerated Degradation Tests

Yu-Chang Lin *(National Changhua University of Education, Taiwan)*
Yi-Ru Li *(National Changhua University of Education, Taiwan)*
Kuan-Jung Chung *(National Changhua University of Education, Taiwan)*

Optimal Operational Selection and Sequencing of Systems with Mixtures of One-Shot Units

Yao Cheng *(Rutgers University, USA)*
Elsayed A. Elsayed *(Rutgers University, USA)*

SESSION 7: Software Engineering, Reliability and Security Analysis

Chair: Prof. Taghi M. Khoshgoftaar *(Florida Atlantic Univ., USA)*

Performance of Feature Subset Evaluators for Software Engineering Datasets

Huanjing Wang *(Western Kentucky University, USA)*
Taghi M. Khoshgoftaar *(Florida Atlantic University, USA)*
Kehan Gao *(Eastern Connecticut State University, USA)*

A Framework for Capturing HTTP GET DDoS Attacks on a Live Network Environment

Chad Calvert *(Florida Atlantic University, USA)*
Clifford Kemp *(Florida Atlantic University, USA)*
Taghi M. Khoshgoftaar *(Florida Atlantic University, USA)*
Maryam M. Najafabadi *(Florida Atlantic University, USA)*

Effective Selection of Packet Header Fields For Detection of Man In The Middle Attacks in LAN Environments

Maryam M. Najafabadi *(Florida Atlantic University, USA)*

Taghi M. Khoshgoftaar *(Florida Atlantic University, USA)*
Chad Calvert *(Florida Atlantic University, USA)*
Clifford Kemp *(Florida Atlantic University, USA)*

Analysis of a Transfer Learning Application Using the Transfer Learning Test Framework

Karl R. Weiss *(Florida Atlantic University, USA)*
Taghi M. Khoshgoftaar *(Florida Atlantic University, USA)*

SESSION 8: System Reliability and Maintenance Optimization

Chair: Prof. Yao Hsu *(Kainan University, Taiwan)*

An Efficient Algorithm to Solve the Maximal Flow Problems

Shin-Guang Chen *(Tungnan University, Taiwan)*

Extended Optimal Replacement Policy Based on Cumulative Damage for a Two-Unit System Subject to Shocks

Shey-Huei Sheu *(Providence University, Taiwan)*
Tzu-Hsin Liu *(Providence University, Taiwan)*
Zhe-George Zhang *(Western Washington University, USA)*
Hsin-Nan Tsai *(Providence University, Taiwan)*

Network Reliability for Flight Routes with Time and Stopover Constraints

Phuong Thi Nguyen *(National Taiwan University of Science and Technology, Taiwan)*
Yi-Kuei Lin *(National Taiwan University of Science and Technology, Taiwan)*

Reliability Analysis of High-Power LED Assemblies of Street Light under Thermal Environments

Yao Hsu *(Kainan University, Taiwan)*
Wen-Fang Wu *(National Taiwan University, Taiwan)*
Cheng-Hua Wang *(National Taiwan University, Taiwan)*

SESSION 9: Reliability/Maintenance Modeling and Applications (in honor of Prof. Shigeru Yamada)

Chair: Prof. Yoshinobu Tamura *(Tokyo City University, Japan)*

Reliability Modelling of Window Flow Control Scheme for a Communication System based on Packet Transmission Interval

Mitsutaka Kimura *(Gifu City Women's College, Japan)*
Mitsuhiro Imaizumi *(Aichi Gakusen University, Japan)*
Toshio Nakagawa *(Aichi Institute Of Technology, Japan)*

A Two-Stage Policy for a Server System With Illegal Access

Mitsuhiro Imaizumi *(Aichi Gakusen University, Japan)*
Mitsutaka Kimura *(Gifu City Women's College, Japan)*

Optimal Self Inspection Policies of Self-service Retailers

Kodo Ito *(Fukushima University, Japan)*
Yoshiyuki Higuchi *(Fukushima University, Japan)*
Masao Ohta *(Fukushima University, Japan)*
Xiaoyuan Liu *(AEON Co.,Ltd., Japan)*

Optimization and Reliability Analysis Tool Based on Multi-Dimensional Wiener Processes for Big Data on Cloud Computing

Yoshinobu Tamura *(Tokyo City University, Japan)*
Shigeru Yamada *(Tottori University, Japan)*

SESSION 10: Reliability, Safety and Risk Assessment

Chair: Dr. Mingxiao Jiang *(Medtronic, Plc., USA)*

Design Option Analysis of SRAM-based FPGAs in Safety-Critical Systems

Xiangfen Wang *(Beihang University, China)*
Yiliu Liu *(Norwegian University of Science and Technology, Norway)*
Mary Ann Lundteigen *(Norwegian University of Science and Technology, Norway)*
Cheng Gao *(Beihang University, China)*
Jiaoying Huang *(Beihang University, China)*

Research of Reliability Evaluation Method Based on Optimal Parameter Estimation

Jianjun Ma *(University of Shanghai for Science and Technology, China)*
Songlin Zheng *(University of Shanghai for Science and Technology, China)*
Tie Chen *(University of Shanghai for Science and Technology, China)*
Jinzhi Feng *(University of Shanghai for Science and Technology, China)*

Lihui Zhao *(University of Shanghai for Science and Technology, China)*

Comparisons of Endurance Time Models in the Prediction of Pulling Tasks

Kai Way Li *(Chung Hua University, China)*
Fan Tang *(Hunan Institute of Technology, China)*
Cannan Yi *(Hunan Institute of Technology, China)*
Lu Peng *(Hunan Institute of Technology, China)*

Risk Assessment with Causality Measurement

Mingxiao Jiang *(Medtronic, Plc., USA)*
Feng-Bin Sun *(Tesla, Inc., USA)*

SESSION 11: Software and System Reliability Modeling & Applications (in honor of Prof. Shigeru Yamada)

Chair: Prof. Satoshi Fukumotoz *(Tokyo Metropolitan University, Japan)*

Software Reliability Modeling Approaches with Test Environmental Factors

Ailin Li *(Tottori University, Japan)*
Shinji Inoue *(Kansai University, Japan)*
Shigeru Yamada *(Tottori University, Japan)*

Human Reliability Analysis to Support the Development of a Software Project

Silvia Carpitella *(Università degli Studi di Palermo, Italy)*
Antonella Certa *(Università degli Studi di Palermo, Italy)*
Mario Enea *(Università degli Studi di Palermo, Italy)*
Giacomo Maria Galante *(Università degli Studi di Palermo, Italy)*
Joaquín Izquierdo *(Universitat Politècnica de València, Spain)*
Concetta Manuela La Fata *(Università degli Studi di Palermo, Italy)*

A Note on an Optimal Maintenance Policy for a Markovian Deteriorating System Subject to Random Shocks

Nobuyuki Tamura *(Hosei University, Japan)*

A Synchronous Software Rejuvenation Technique for Time Warp Event Simulation

Mamoru Ohara *(Tokyo Metropolitan Industrial Technology Research Institute, Japan)*
Satoshi Fukumoto *(Tokyo Metropolitan University, Japan)*

SESSION 12: Engineering Reliability and Applications
Chair: Prof. Dong Ho Park *(Hallym University, Korea)*

Reliability Analysis of Complex Welded Aluminium Alloy Structural Part

Xiaowei Yin *(Shenyang Institute of Engineering, China)*
Changhui Yao *(Northeastern University, China)*
Wenxue Qian *(Northeastern University, China)*
Liyang Xie *(Northeastern University, China)*

Three-Parameter vs. Two-Parameter Weibull Model for Single Fiber Strength

Ningxiang Wu *(Northeastern University, China)*
Liyang Xie *(Northeastern University, China)*

Analysis of Thermal Characteristics of Aircraft Gearbox Based on Thermal Network Method

Xingfu Zhao *(Beihang University, China)*
Guanhua Song *(Beihang University, China)*
Yidu Zhang *(Beihang University, China)*
Yanzhong Wang *(Beihang University, China)*
Delong Dou *(Beihang University, China)*

On the Shape of Failure Rate Curve and Influencing Factors

Liyang Xie *(Northeastern University, China)*
Bo Qin *(Northeastern University, China)*

SESSION 13: Reliability Analysis and Optimization
Chair: Prof. B.S Dhillon *(University of Ottawa, Canada)*

Optimal Reliability of Series and Parallel Systems subject to Two Failure Modes Considering Correlated Failures

Anusha Krishna Murthy *(University of Massachusetts Dartmouth, USA)*
Saikath Bhattacharya *(University of Massachusetts Dartmouth, USA)*
Lance Fiondella *(University of Massachusetts Dartmouth, USA)*

Reliability Analysis Method For Three-State Nuclear Power Electrical Systems Based On Goal Oriented Methodology

Ming-chao Lu *(Shanghai Nuclear Engineering Research & Design Institute, China)*
Xiao-jian Yi *(China North Industries Group Corp., China)*
Jian-feng Chen *(Shanghai Nuclear Engineering Research & Design Institute, China)*
Yong-jun Bai *(Shanghai Nuclear Engineering Research & Design Institute, China)*
Hui-na Mu *(Beijing Institute of Technology, China)*

Expected Waiting Time of Demand Responsive Transport with a Waiting Point

Junji Koyanagi *(Tottori University, Japan)*
Kensuke Takemoto *(Tottori University, Japan)*

Mining Equipment Reliability: An Investigative Study

B.S Dhillon *(University of Ottawa, Canada)*

SESSION 14: Performance Modeling and Simulation
Chair: Prof. Hoang Pham *(Rutgers University, USA)*

Security Analysis of Airborne Transmitter's Thread Connection Based on Finite Element Simulation Technology

Yan-zhong Wang *(Beihang University, China)*
Peng Liu *(Beihang University, China)*
Jing-bo Guo *(ShiJiaZhuang Tie Dao University, China)*
Xue-miao Cui *(Liaoning University of Technology, China)*

Research on Load Spectrum of CNC Machine Tool Based on Cutting Current Signal

Ying Wu *(Huazhong University of Science and Technology, China)*
Bin Li *(Huazhong University of Science and Technology, China)*
Jindong Li *(Yunke Intelligent Manufacturing (Shenyang) Co., Ltd, China)*
Subao Ding *(Huazhong University of Science and Technology, China)*

Performance Analysis and Design Improvement of a Sludge Dewatering System

Derrick C.P. Ng *(The Hong Kong Polytechnic University, Hong Kong SAR)*

Eric T.T. Wong *(The Hong Kong Polytechnic University, Hong Kong SAR)*

Simulation Specimen Design Method of Aeroengine Compressor Disk

Wenxue Qian *(Northeastern University, China)*
Jiyao Liu *(Northeastern University, China)*
Yankai Yuan *(Northeastern University, China)*
Xiaowei Yin *(Shenyang Institute of Engineering, China)*
Liyang Xie *(Northeastern University, China)*

SESSION 15: Integrated Reliability and Safety Analysis
Chair: Prof. Zhenmin Chen *(Florida International University, USA)*

Non-repairable Multi-state Consecutive 2-out-of-*n* Failed Systems subject to Correlated Failures

Bentolhoda Jafary *(University of Massachusetts Dartmouth, USA)*
Lance Fiondella *(University of Massachusetts Dartmouth, USA)*

Random Vibration Analysis of a New Type of EMU CFRP Equipment Cabin Frame

Yong-Yan Wang *(Qingdao University of Science & Technology, China)*
Xiang-Feng Zhang *(Qingdao University of Science & Technology, China)*
Yue-Li Han *(Qingdao University of Science & Technology, China)*
Yu-Biao Zhang *(Qingdao University of Science & Technology, China)*
Xiu-Wen Shi *(Qingdao University of Science & Technology, China)*

Design, Build and Test an Innovative Tail-Sitter Unmanned Aerial Vehicle (UAV)

Yiming Zhang *(The Hong Kong Polytechnic University, Hong Kong SAR)*
Weichen Xu *(The Hong Kong Polytechnic University, Hong Kong SAR)*
Guangyi Chen *(The Hong Kong Polytechnic University, Hong Kong SAR)*

Performance Analysis of Change Point based Software Reliability Growth Model Incorporating Both Fault Reduction Factor and Test Coverage

Ankur Shukla *(Indian Institute of Technology, India)*

Subhashis Chatterjee *(Indian Institute of Technology, India)*
Bhagyashree Chaudhuri *(Indian Institute of Technology, India)*

Use Pyramidal Distribution for Multivariate Uniformity Test Power Comparison

Zhenmin Chen *(Florida International University, USA)*

SESSION 16: Reliability Optimization
Chair: Dr. Manwinder Kaur *(General Shivdev Singh Diwan Gurbachan Singh Khalsa College, India)*

A Modified Proximal Gradient Method for a Class of Sparse Optimization Problems

Yingyi Li *(Beijing University of Technology, China)*
Haibin Zhang *(Beijing University of Technology, China)*

Reliability and importance measures for Combined *m*-Consecutive-*k*-out-of-*n*: F and Consecutive-k_b-out-of-*n*: F Systems with non-homogeneous Markov-dependent components

Mahmoud Boushaba *(Ecole Normale Supérieure de Constantine, Algeria)*
Azzedine Benyahia *(Ecole Normale Supérieure de Constantine, Algeria)*

A Method of Optimization Selecting Test Points by Inverse Process

Wenkui Hou *(Beihang University, China)*
Zhiming Zhang *(Beihang University, China)*

Modal Analysis and Crack Propagation Residual Life Prediction of Vibrating Screen Beam

Zerong Zhang *(Qingdao University of Science and Technology, China)*
Yongyan Wang *(Qingdao University of Science and Technology, China)*
Zhimin Fan *(Qingdao University of Science and Technology, China)*

Duplex Paper Industry (Manufacturing Process and its Performance Analysis)

Aakash Deep Sharma *(Sri Guru Granth Sahib World University, India)*
Manwinder Kaur *(General Shivdev Singh Diwan Gurbachan Singh Khalsa College, India)*

Thank you for contributing and participating in the 23rd ISSAT RQD conference

We hope you enjoy the entire program

Save the Date!

RQD 2018

24th ISSAT International Conference

RELIABILITY AND QUALITY IN DESIGN

Toronto, Ontario, Canada

August 2-4, 2018

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