

Special Session X

Special Session Basic Information:

专栏题目 Session Title	中文：面向退化过程的统计试验设计与决策优化 英文：Statistical Experimental Design and Decision Optimization for Degradation Processes
专栏介绍和征稿主题 Introduction and topics	<p>中文：本专题聚焦于面向退化过程的统计试验设计与决策优化问题，旨在汇聚可靠性工程与工业统计领域的最新研究进展。随着现代工程系统中状态监测与退化数据的不断积累，基于退化信息的方法已成为开展性能评估与寿命预测的重要手段，同时也对试验设计与运行决策提出了新的挑战。</p> <p>本专题致力于推动构建贯通建模、推断、设计与决策优化的一体化方法体系，在退化建模框架下实现多环节协同优化。重点关注提升试验效率、优化资源配置，并支撑预测性维护与面向可靠性的决策制定。</p> <p>征稿主题包括但不限于：1) 退化过程的统计建模与推断；2) 加速退化试验的最优设计；3) 基于退化的可靠性分析与剩余寿命预测；4) 基于退化信息的维修优化与决策方法。</p> <p>英文： This special session focuses on statistical experimental design and decision optimization for degradation processes, aiming to bring together recent advances in reliability engineering and industrial statistics. With the growing availability of condition monitoring and degradation data in modern engineering systems, degradation-based approaches have become essential for performance assessment and lifetime prediction, while also introducing new challenges in experimental design and operational decision-making.</p> <p>This session seeks to promote integrated methodologies that bridge modeling, inference, design, and decision optimization within degradation frameworks. Particular emphasis is placed on improving experimental efficiency, optimizing resource allocation, and enabling predictive maintenance and reliability-oriented decision-making.</p> <p>Topics of interest include, but are not limited to: 1) statistical modeling and inference for degradation processes; 2) optimal design of accelerated degradation tests; 3) degradation-based reliability analysis and remaining useful life prediction; and 4) maintenance optimization and decision-making under degradation.</p>

Special Session Chair(s):

	姓名 Name	方冠奇/Guanqi Fang
	称谓 Prefix	副教授/Associate Professor
	部门 Department	统计与数据科学学院/School of Statistics and Data Science
	单位 Organization	浙江工商大学/Zhejiang Gongshang University
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Organizer's Brief Biography

中文：方冠奇，浙江工商大学统计与数据科学学院副教授，2020年毕业于美国亚利桑那州立大学，获工业工程博士与统计学硕士双学位。长期从事退化过程建模、贝叶斯统计、多元统计与试验设计等方向研究。现主持浙江省自然科学基金重点/青稔项目（原优秀青年项目）1项，曾主持国家自然科学基金青年项目和浙江省自然科学基金青年项目各1项。现任 Journal of Reliability Science and Engineering 青年编委及 IEEE Nanjing Section Reliability Society Chapter Secretary。曾受邀参加2024年英国伦敦举办的第9届 Stu Hunter Research Conference，并于2025年受邀在美国质量协会主办的 Quality and Productivity Research Conference (QPRC)上作分会场特邀报告。研

究成果发表在工业统计、质量与可靠性领域国内外一流期刊，包括 *Technometrics*、*European Journal of Operational Research*、*IEEE Transactions on Reliability* 等。

英文： Guanqi Fang is an Associate Professor in the School of Statistics and Data Science at Zhejiang Gongshang University. He received his Ph.D. in Industrial Engineering and M.S. in Statistics from Arizona State University in 2020. His research interests include degradation process modeling, Bayesian statistics, multivariate analysis, and experimental design. He is currently the principal investigator of a Key Project (formerly Excellent Young Scientists Project) funded by the Zhejiang Provincial Natural Science Foundation, and has previously led one project each funded by the National Natural Science Foundation of China and the Zhejiang Provincial Natural Science Foundation. Dr. Fang serves as a Youth Editorial Board Member of the *Journal of Reliability Science and Engineering* and as the Secretary of the IEEE Nanjing Section Reliability Society Chapter. He was invited to attend the 9th Stu Hunter Research Conference held in London, UK, in 2024, and delivered an invited session talk at the Quality and Productivity Research Conference (QPRC) organized by the American Society for Quality in 2025. His research has been published in leading journals in industrial statistics, quality, and reliability, including *Technometrics*, *European Journal of Operational Research*, and *IEEE Transactions on Reliability*.

	姓名 Name	赵秀杰/Xiujie Zhao
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Organizer's Brief Biography

中文： 赵秀杰，天津大学管理与经济学部工业工程系副教授。分别于 2013 年、2015 年和 2018 年获得清华大学、宾夕法尼亚州立大学、香港城市大学工业工程专业学士、硕士与博士，并分别于 2017 年和 2018 年短期访问法国格勒诺贝尔大学与英国剑桥大学。“北洋学者英才计划”入选者。主要研究领域为可靠性与质量管理、实验设计、质保策略优化、系统维修优化与工业统计。曾在 *IIE Transactions*, *European Journal of Operational Research*, *Journal of Quality Technology*, *Reliability Engineering & System Safety*, *IEEE Transactions on Reliability* 等国际期刊上发表论文 50 余篇，并曾获得 ISE Magazine Featured Article 荣誉。另外，曾发表数篇国际会议论文，并获得第 46 届 *Computers and Industrial Engineering* 国际会议优秀论文奖。主持 1 项自然科学基金面上项目，1 项自然科学基金青年项目，并曾参与多项重点项目及国际（地区）合作项目。

英文： Xiujie Zhao is an Associate Professor with the Department of Industrial Engineering, College of Management and Economics, Tianjin University. He received his B.S. degree from Tsinghua University in 2013, M.S. degree in from the Pennsylvania State University in 2015, and Ph.D. degree from City University of Hong Kong in 2018, respectively. He conducted short-term academic visits to Grenoble Alpes University, France in 2017 and the University of Cambridge, the United Kingdom in 2018. He is a selected recipient of the Peiyang Scholar Talent Program. His main research areas include reliability and quality management, design of experiments, warranty strategy optimization, system maintenance optimization, and industrial statistics. He has published more than 50 papers in international journals such as *IIE Transactions*, *European Journal of Operational Research*, *Journal of Quality Technology*, *Reliability Engineering & System Safety*, and *IEEE Transactions on Reliability*, and was awarded of ISE Magazine Featured Article. In addition, he has published several international conference papers and received the Excellent Paper Award at the 46th International Conference on Computers and Industrial Engineering. He serves as the PI of one General Program and one Young Scientists Fund project of the National Natural Science Foundation of China (NSFC), and has participated in a number of key projects and international (regional) cooperation projects.

	姓名 Name	石越/Yue Shi
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	单位 Organization	武汉大学/Wuhan University
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Organizer's Brief Biography

中文：石越，武汉大学经济与管理学院特聘副研究员。2022年毕业于美国德克萨斯理工大学，获工业工程博士学位。主要研究方向为不确定性决策与数据驱动优化，及其在智能制造、供应链管理和风险管理中的应用。现主持国家自然科学基金项目1项，曾主持中央高校基本科研业务费项目1项。现任中国运筹学会可靠性分会青年理事。研究成果发表于 *European Journal of Operational Research*、*IIE Transactions*、*IEEE Transactions on Engineering Management*、*Reliability Engineering & System Safety* 等工业工程、运筹学领域权威期刊。其中发表于 *IIE Transactions* 的论文被选为2021年 *Industrial and Systems Engineer Magazine* Featured Article。曾获2019年 *Society of Reliability Engineering* Doug Ogden 最佳论文奖，以及2021年 *IIE/QCRE* 最佳论文奖。

英文：Yue Shi is currently an assistant professor in the School of Economics and Management at Wuhan University. She received her Ph.D. in Industrial Engineering from Texas Tech University, USA, in 2022. Her research primarily focuses on decision-making under uncertainty and data-driven optimization with applications in smart manufacturing, supply chain management, and risk management. She is currently the principal investigator of a project funded by the National Natural Science Foundation of China, and has previously led a project funded by the Fundamental Research Funds for the Central Universities. She currently serves as the Youth Director of the Reliability Branch of the Operations Research Society of China. She has published articles in refereed journals, such as *European Journal of Operational Research*, *IIE Transactions*, *IEEE Transactions on Engineering Management*, and *Reliability Engineering & System Safety*. One of her papers published in *IIE Transactions* was selected as the 2021 Featured Article in *Industrial and Systems Engineer Magazine*. She was the recipient of the Doug Ogden Best Paper Award from the Society of Reliability Engineering in 2019 and the *IIE/QCRE* Best Track Paper Award in 2021.