

Special Session XIX

Special Session Basic Information:

专栏题目
Session Title

中文：退化与级联失效的随机可靠性建模
英文：Stochastic Reliability Modeling for Degradation and Cascading Failures

专栏介绍和征稿主题
Introduction and topics

中文：本专题聚焦复杂工程与网络系统在随机可靠性建模、退化预测、级联失效分析方向的前沿研究，融合先进统计建模方法、动态环境适配机制与系统可靠性优化策略，解决时变不确定运行场景下系统性能评估、剩余寿命预测和抗风险能力提升等关键难题。本专题旨在展示关于退化与级联失效的随机可靠性建模的原创性研究。包括竞争失效系统、多阶段任务系统、云计算系统、汽车安全系统、网络系统、级联失效系统等复杂体系的可靠性建模分析。

感兴趣的主题包括但不限于：级联 / 竞争失效可靠性建模分析、多模式失效可靠性分析、网络可靠性建模与优化、多状态系统与多阶段任务系统可靠性分析及其他相关研究。

英文：This session centers on the frontier research of stochastic reliability modeling, degradation prognosis, and cascading failure analysis for complex engineering and network systems. It integrates advanced statistical modeling methods, dynamic environmental adaptation mechanisms, and system reliability optimization strategies to address key challenges in system performance evaluation, residual life prediction, and risk resistance improvement under uncertain and time-varying operating conditions. This special session aims to present original research on the Stochastic Reliability Modeling for Degradation and Cascading Failures. The special session focuses on the reliability modeling and analysis of complex systems, including systems subject to competing failures systems, phased-mission systems, cloud computing systems, car safety systems, network systems, cascading failures systems.

Topics of interest include, but are not limited to: reliability modeling and analysis of cascading/competing failures, reliability analysis of multi-mode failures, network reliability modeling and optimization, reliability analysis of multi-state systems and phased-mission systems, and other related topics.

Special Session Chair(s):

	姓名 Name	贾旭杰 Xujie Jia
	称谓 Prefix	教授 Prof.
	部门 Department	理学院 College of Science
	单位 Organization	中央民族大学 Minzu University of China
	城市/地区 City/Region	中国北京 Beijing, China

Organizer's Brief Biography

中文：贾旭杰，中央民族大学理学院教授。2009 年于北京理工大学获得管理科学与工程博士学位，曾在美国达特茅斯学院马萨诸塞大学电气与计算机工程系担任访问学者。主要研究方向为质量与可靠性工程、随机建模和运筹优化。

英文：Xujie Jia is a professor at the College of Science, Minzu University of China. She received her Ph.D degree of management science and engineering from Beijing Institute of Technology in 2009. She was a visiting scholar in the Department of Electrical and Computer Engineering, University of Massachusetts (UMass), Dartmouth, USA. Her main research interests are in quality and reliability engineering, stochastic modeling, and operations research.

Special Session Chair(s):

	姓名	张建东
	Name	Jiandong Zhang
	称谓	副教授
	Prefix	Associate Professor
	部门	数学与统计学院
	Department	School of Mathematics and Statistics
	单位	西北师范大学
	Organization	Northwest Normal University
	城市/地区	甘肃省兰州
	City/Region	Lanzhou, Gansu Province

Organizer’s Brief Biography

中文：张建东博士现任西北师范大学数学与统计学院统计系助理教授。其主要研究方向为可靠性统计理论与数据科学方法，专注于退化数据建模与统计推断、贝叶斯统计方法、统计机器学习以及人工智能的统计基础。其研究成果已发表于 Naval Research Logistics, TEST, Journal of Applied Probability, Reliability Engineering & System Safety 等。

英文： Dr. Jiandong Zhang currently serves as an Assistant Professor at the Department of Statistics, School of Mathematics and Statistics, Northwest Normal University. His primary research interests lie in reliability statistical theories and data science methodologies, focusing on degradation data modeling and statistical inference, Bayesian statistical methods, statistical machine learning, as well as the statistical fundamentals of artificial intelligence. His research findings have appeared in numerous peer-reviewed international journals, such as Naval Research Logistics, TEST, Journal of Applied Probability, Reliability Engineering & System Safety, Proceedings of the Institution of Mechanical Engineers, Part O: Journal of Risk and Reliability, Communications in Statistics - Theory and Methods, Statistical Theory and Related Fields, Journal of Computational and Applied Mathematics, and Applied Mathematical Modelling.