师资力量
- 人才建设
- 博士生导师
- 教授名录
- 全院教师

教师姓名: 姜文光	所在部门: 机械设计系
性　　别: 男	现有职称: 教授
出生年月: 1966	导师身份: 博士生导师
民　　族: 汉	学　　位: 博士
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基本教学信息

本科教学信息

讲授课程:
机械概论
专业前沿讲座
机械设计（双语教学）
复合材料力学
先进工程数值方法（英文教学，University of Leicester，UK）
塑性力学（英文教学，University of Leicester，UK）

研究生教学信息

学科及研究方向

1.[硕士]机械设计及理论(080203)，研究方向：工程机械设计；计算机辅助设计；计算力学；复合材料；金属成形；钢丝绳
2.[博士]机械设计及理论(080203)，研究方向：工程机械设计；计算机辅助设计；计算力学；复合材料；金属成形；钢丝绳

研究生招生信息

计划每年招收博士生1-2名，硕士生4-10名。
在读研期间，大部分学生可从事实际工程科研项目，可去徐州工程机械集团实习(有补助)，可在读研期间被公司提前录用并提前计入公司实习期并发放薪金；成绩优异者可从事国际合作研究并发表高水平科研论文；读研早期，将强化工程分析软件的应用开发技能，为高水平科研项目的顺利进行打下坚实基础。欢迎勤奋、务实、守信、有志成就事业的优秀学生加入我们极具活力及创造力的学术团队，在从事丰富的实际课题中锻炼成高水平人才。

强势特色科研方向:
工程机械设计及性能分析模拟软件研发

本课题组常用软件:
分析软件： ANSYS, ABAQUS, ADAMS, and self-developed programs
造型软件： Pro/E, Solid Works
编程语言： ANSYS APDL, VB, Fortran

姜文光老师主要学术贡献及科研方向简介：

主要从事于开发和应用数值模拟技术解决工程问题的研究工作，共发表学术论文50余篇,其中sci索引国际杂志18篇，已被引用500余次。

近年来，研究主要集中于碳纤维增强复合材料渐进破坏过程机理的模拟，开发了一些先进的模拟技术。能够预测裂纹在工程构件中的产生与扩展是公认的近一个世纪以来计算力学领域的最大标志性成就之一,本人提出了概念更简洁明了、易于实施、效率更高且比现有

的方法更接近物理现实的裂纹尖端区域的本构关系(Jiang et al, 2007,International Journal for Numerical Methods in Engineering),基于此本构关系建立了预测裂纹在纤维增强复合材料中的产生与扩展过程的粘性区界面有限元模型，模拟结果与后续的大量实验结果完美吻合，该文已被引用70余次，本人当时工作的Bristol大学课题组目前已发表与此项研究直接相关论文20余篇，项目总监Prof M. R.Wisnom 认为这是他多年来所做所有科研项目中最成功的两项之一，得到合作公司Airbus的高度评价，参与该项目的合作伙伴还包括英国国防部及著名复合材料生产商(Hexcel Composites)。本人在该合作项目中开发的软件被作为英国大学间交流成果安装在Oxford大学的计算机系统中供合作科研使用。基于个人的突出贡献被聘为Bristol大学航天系永久研究员职位（1997），正式具备独立指导博士研究生资格，与此同时获得EPSRC DTA奖用于培养欧共体博士研究生。

提出的用于模拟编织复合材料的区域叠合法（DST）有效地克服了传统有限元建模的弊端。该建模理念已与前期科研合作公司（Rolls-Royce）联合申请了国际专利（WO 2008/122751）。在最近出版的专著“Mechanical Response of Composites”中，DST法被誉为代表最新技术水平的复合材料模型之一(Jiang et al, 2008)。由于DST早期应用主要集中在模拟线弹性问题，近期本人已经成功将DST法推广到复合材料非线性分析过程，用DST法实施非线性分析的理论框架近期已发表在美国复合材料学会会刊Journal of Composite Materials上(Jiang 2012)。和传统有限元法相比，DST法直观并极易于实施,把实施过程程序化后，模拟者不需特殊技巧便可实施模拟，若用传统方法，建立可运行模型即使是对有经验的数值模拟工程师也常需数月时间。相信在不远的将来DST法会在复合材料的性能预测领域、尤其在工业界会得到广泛应用。

在攻读博士期间所提出的螺旋对称变形场模式的精确解析边界条件为钢丝绳、复合材料梁等基础领域的研究提供了概念简明且易于实施的准确数值模拟手段，这方面的研究已发表了11篇一作国际杂志文章，文章已被引用百余次。近期的在这方面的研究进展包括钢丝绳精确弯曲数值模拟边界条件的建立以及对有断丝的钢丝绞线的力学特性的分析(Jiang et al, 2012)。所提出的截面耦合法求解等截面梁在拉压弯扭载荷作用下的变形及应力分析（是材料力学、工程力学的重要基础研究内容）的简明数值模型，尤其适用于对复合材料结构梁的求解(Jiang et al, 2006,2002)。

除了以上主要学术贡献,本人还在材料塑性成形的模拟方面做过一些工程实际课题(如:Jiang 等, Computational Mechanics, 31(1-2), 2003),93-95年间开发的冷弯型钢通用软件系统曾被南京轧钢总厂等多家工厂用于产品设计过程,该软件适用于各种复杂截面产品设计,可实现自动配辊。近期正与徐工等企业合作进行多项设计、分析及计算机辅助设计软件研发工作，开发的新产品已销往国外。

最后，要提及的是我们拥有得天独厚的国际合作基础，本人在英国著名高校的世界顶级领域专家的科研团队从事科研教学工作长达十四年之久，包括国际复合材料委员会主席、国际杂志Composites Part A 主编：Prof. M.R. Wisnom的团队，布鲁内尔大学计算数学研究所Prof. J.R. Whiteman的团队。

硕士教学信息

毕业： 张彦利，孙 岩，邓军雷，黄世朋，高文静

在研： 2011： 付宜进，崔文平，段笑梅，许伟龙，牛 松，吴伯成，刘 珺

2012： 董立娟，宋金潮，李成坤，张净华，朱玉乾，冀浩杰，李 然，李树发，任建峰

2013： 李 琦，解士翔，刘晓亮，魏晓娜，刘 博，郭 川，余 凯，崔耀中，仇晓明，王 冲，陈 超，申付朋

博士教学信息

在研博士：张芳芳，于春蕾，崔哲

科研信息

在研项目信息

2013- 多项工程机械设计及性能分析模拟软件研发项目

2010- 复合材料仿真技术研究（留学回国人员基金）

完成项目信息

2010-2013 编织复合材料性能高效预测数值模型开发（省基金）

2012-2013 林业起重机开发（徐工集团）

2009-2013 燕山大学博士基金

2011-2012 拉臂式自装卸装置结构分析软件开发（徐工集团）

2011-2012 扩径导线截面稳定性研究（中国电力科学研究院）

2010-2011 烘丝机筒体支撑优化设计（秦皇岛烟机厂）

2006-2008 Simulation and Modelling of 3D Woven Composite Materials (Funded by DTI and Rolls Royce, UK)

2003-2006 Scaling Effects in Composite Materials (Funded by EPSRC and Airbus, UK)

1999-2003 Finite Element Simulation of Polymer Thermoforming Process (Funded by EPSRC and Autotype Int Ltd, UK)

1996-1999 Study of Contact in Steel Wire Ropes (PhD study, Funded by ORS award and Bridon International Ltd, UK)

1993-1995 CAD System for Cold Roll Forming (Funded by Nanjing General Steel Rolling Company, PR China)

1991-1993 CAD System for Mechanical Wrist-watch Design (Funded by Liaoning Wrist-Watch Company, PR China)

专著、专利信息

INTERNATIONAL PATENT:

International Patent Publication No: WO 2008/122751, Inventor: Wen-Guang Jiang, Applicant: Rolls-Royce Plc, Title of the Invention: A computer and a method of modelling a woven composite material.

BOOK CHAPTERS:

Jiang WG, Hallett SR, Wisnom MR, Development of domain superposition technique for woven composites, in book 'Mechanica

l Response of Composites', Published by Springer, 2008. DOI: 10.1007/978-1-4020-8584-0.
Hallett SR, Jiang WG, Wisnom MR, Khan B, Modelling of delamination damage in scaled quasi-isotropic specimens, in boo k 'Solid Mechanics and Its application', Published by Springer, 2006. DOI: 10.1007/1-4020-4566-2_23.

学术论文信息

INTERNATIONAL JOURNAL PAPERS:
Jiang WG, Implementation of domain superposition technique for the nonlinear analysis of composite materials, Journal o f Composite Materials, Vol. 47(2), 243-249, 2013. (SCI,EI)
Jiang WG, A concise finite element model for pure bending analysis of simple wire strand, International Journal of Mech anical Sciences, Vol. 54(1), 69-73, 2012. (SCI,EI)
Jiang WG, Yan LJ, A concise finite element model for the analysis of simple wire strand with a broken helical wire, Adv anced Materials Research , Vols. 446-449,745-790. 2012.(EI)
Jiang WG, Yan LJ, A slice finite element model for bending analysis of curved beams, Advanced Materials Research, Vo l. 338, 282-285, 2011. (EI)
Hallett SR, Jiang WG and Wisnom MR, The effect of stacking sequence on open hole tensile strength of composite Laminat es, AIAA Journal, Vol.47(7), 1692-, 2009. (SCI,EI)
Hallett SR, Green BG, Jiang WG, Cheung KH, Wisnom MR, The open hole tensile test: a challenge for virtual testing of co mposites, International Journal of Fracture, Vol.158(2), 169-181, 2009. (SCI,EI)
Jiang WG, Warby M, Henshall JL, Statically indeterminate contacts in axially loaded wire strand, European Journal of Me chanics A/Solids, Vol.27(1), 69-78, 2008. (SCI,EI)
Hallett SR, Jiang WG, Khan B, Wisnom MR, Modelling the interaction between matrix cracks and delamination damage in sca led quasi-isotropic specimens, Composites Science and Technology, Vol. 68(1), 80-89, 2008. (SCI,EI)
Jiang WG, Hallett SR, Green BG, Wisnom MR, A concise interface constitutive law for analysis of delamination and splitt ing in composite materials and its application to scaled notched tensile specimens, International Journal for Numerica l Methods in Engineering, Vol.69(9), 1982-1995, 2007. (SCI,EI)
Jiang WG, Henshall JL, Analysis of composite laminate beams using coupling cross-section finite element method, Applie d Mathematics and Mechanics, Vol.27(12),1709-1718, 2006. (SCI,EI)
Hallett SR, Green BG, Jiang WG and Wisnom MR, An experimental and numerical investigation into the damage mechanisms i n notched composites, Composites Part A: Applied Science and Manufacturing, Vol.40(5), 613-624, 2009. (SCI,EI)
Jiang WG, Warby M, Whiteman JR, Finite element modelling of high air pressure forming processes for polymer sheets, Com putational Mechanics, Vol.31(1-2), 163-172, 2003. (SCI,EI)
Warby M, Whiteman JR, Jiang WG, Finite element simulation of thermoforming process for polymer sheets, Mathematics an d Computers in Simulation, Vol.61(3-6), 209-218. 2003. (SCI,EI)
Jiang WG, Henshall JL, A coupling cross-section finite element model for torsion analysis of prismatic beams, Europea n Journal of Mechanics A/Solids, Vol.21(3), 513-522, 2002. (SCI,EI)
Jiang WG, Henshall JL, Torsion-extension coupling in initially twisted beams by finite elements, European Journal of Me chanics A/Solids. Vol.20(3), 501-508, 2001. (SCI,EI)
Jiang WG, Henshall JL, A novel finite element model for helical springs, Finite Elements in Analysis and Design, Vol.35 (4),363-377, 2000.(SCI,EI)
Jiang WG, Henshall JL, Walton JM, A concise finite element model for 3-layer straight wire rope strand, International J ournal of Mechanical Sciences, Vol. 42(1), 63-86, 2000. (SCI,EI)
Jiang WG, Henshall JL, The development and applications of the helically symmetric boundary conditions in finite elemen t analysis, Communications in Numerical Methods in Engineering, Vol. 15(6), 435-443, 1999. (SCI,EI)
Jiang WG, Yao MS, Walton JM, A concise finite element model for simple straight wire rope strand, International Journa l of Mechanical Sciences, Vol.41(2), 143-161, 1999.(SCI,EI)
Jiang WG, Henshall JL, The analysis of termination effects in wire strand using the finite element method, Journal of S train Analysis for Engineering Design, Vol.34(1), 31-38, 1999.(SCI,EI)

INTERNATIONAL CONFERENCE PAPERS:
Jiang WG, Yan LJ, Implementation of stress loading repetitive unit cell finite element model, 3rd International Confere nce on Heterogeneous Material Mechanics, Shanghai (Chong Ming Island), China, May 22-26, 2011.
Jiang WG, Ma L, A distributed multi-agent based model for cold roll forming process, IEEE International Symposium on Kn owledge Acquisition and Modeling Workshop, Wuhan, China, Dec 21-22, 2008.
Jiang WG, Prediction of homogeneous material properties by finite element analysis of microstructure of composite Usin g domain superposition technique, 16th International Conference on Composites/Nano Engineering, PR China, July, 2008.
Wisnom, MR, Green B, Jiang W and Hallett SR, Scaling effects in notched composites, 13th European Conference on Composi te Materials, Sweden, June 2008.
Jiang WG, Hallett SR, Wisnom MR, Domain superposition technique for the modelling of woven composites, ECCOMAS Themati c Conference on Mechanical Response of Composites. Porto, Portugal, Sep 2007.
Hallett SR, Jiang WG, Wisnom MR, The Effect of stacking sequence on thickness scaling of tests on open hole tensile com posite specimens, 48th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, Honolulu, US A, April 2007. ISSN: 0001-1452.
Wisnom, MR, Green B, Jiang W and Hallett SR, Specimen size effects on the notched strength of composite laminates loade

d in tension, International Conference on Composite Materials, Kyoto, July 2007.
Wisnom MR, Green B, Jiang W and Hallett SR, Scaling effects in notched composites loaded in tension, American Society for Composites Technical Conference, Dearborn, September 2006.
Wisnom MR, Green B, Jiang W and Hallett SR, Specimen Size effects on tensile strength and failure mechanisms of carbon/epoxy composites. SWERDA Forum on Advanced Composites for Aerospace Applications. JAXA, Chofu Tokyo, October 2006.
Hallett SR, Jiang W, Garstka T and Wisnom MR, Some applications of interface elements to material and structural failure prediction, NAFEMS Seminar: Prediction and Modelling of Failure Using FEA, Roskilde, Denmark, May 2006.
Jiang WG, Hallett SR, Wisnom MR, Modelling of damage in composite materials using interface elements, 5d-55, 5th European LS-DYNA Users Conference. Birmingham, UK, May 2005.
Hallett SR, Jiang WG, Wisnom MR and Khan B, Modelling Of delamination damage In scaled quasi-isotropic specimens, IUTAM Conference, Poland, May 2005.
Hallett SR, Jiang WG, Wisnom MR, Modelling of delamination damage in scaled quasi-isotropic specimens, Multiscale Modelling of Damage and Fracture Processes in Composite Materials, Kazimierz Dolny, 2005
Warby MK., Whiteman JR., Jiang WG, Warwick P and Wright T, Finite element simulation of thermoforming processes for polymer sheets, 2nd IMACS Conference on Mathematical Modelling and Computational Methods in Mechanics, Physics, Biomechanics and Geodynamics, Mathematics and Computers in Simulation (61):209-218,2003
Jiang WG, Modelling of helical structures by coupling cross-section finite elements, Seminar Nonlinear Problems and Diffusion Equations, University of Karlsruhe, Germany, 25 September 2002, Invited lecturer.
Jiang WG, Henshall JL, Finite element modelling of helical symmetric structures, In Proceeding of the 10th International Conference on The Mathematics of Finite Elements and Applications, p 67, Brunel University, UK, June 1999.
Jiang WG, Yao MS, Walton JM, Modelling of rope strand under axial and torsional loads by finite element method, Proceeding of international OIPEEC Conference on the Application of Endurance Prediction for Wire Ropes, Reading University, UK, pp 17-35, 1997.
Liu C, Zhang L, Jiang WG, A flow model of finite strip for simulation of cold rolling-forming of tubes, Proceeding of 9th International Conference on Sheet Metal, Katholieke Universiteit Leuven, Belgium, pp. 579-586, April, 2001.
Henshall JL, Jiang WG, Calculation of stress distributions in diamond coatings under contact conditions, 50th Diamond Conference, Oxford, 4-7 July, 1999.
Lacerda LA, Wrobel LC, Jiang WG, Henshall JL, Boundary element simulation of the soft impressor technique, 2nd UK Conference on Boundary Integral Methods, Brunel University, 13-14 September 1999.
Jiang WG, Xu GZ, The optical polarization effect of water caused by human mind interference, 3rd National Congress of Chinese Zhineng Qigong Science, October 1996.

JOURNAL PAPERS IN CHINESE:
张芳芳，姜文光，刘才，闫丽娟， 基于区域叠合技术的三维编织复合材料渐进损伤过程数值模拟,复合材料学报，2013
张芳芳，姜文光，于春蕾，刘才， 用区域叠合有限元技术分析三维编织复合材料，燕山大学学报，No.3，219-223,2012.
姜文光，亨帅，用耦合截面法分析复合截面梁 应用数学和力学，27(12)，1497-1505，2006.
卜勇力,刘才,姜文光，赵铁石，基于模糊推理的机械手表设计专家系统的研究，燕山大学学报，22(3)，241-243，1998.
周瑛，姜文光,刘才，辊式成形过程的样条有限条分析 中国机械工程学报，33(2)，82-87，1997.
周瑛，姜文光,刘才，大位移弹塑性样条有限条分析，力学与实践，18(3)，44-46，1996.
卜勇力，刘才，姜文光，赵铁石 机械手表布局智能化设计与实现，钟表，No.2，4-6，1997.
龚景安，姜文光，考虑运动副间隙时二辊冷轧管机的动力学分析，中国机械工程学报，32(6)，95-100，1996.
周瑛，姜文光，刘才，板壳大变形弹-塑性有限条分析,太原重型机械学院学报，16(4)，292-297，1995.

社会信息

社会兼职信息

Reviewer for the following international journals:

International Journal of Solids and Structures
International Journal of Mechanical Sciences
Composites Part A: Applied Science and Manufacturing
Advances in Enginering Software
Acta Mechanica Sinica
Engineering Structures

学习工作简历

1983-1987: 本科，东北重型机械学院轧钢机械专业
1987-1990: 硕士， 燕山大学固体力学
1990-1995: 讲师，燕山大学机械工程系
1995-1996: 访问学者，英国赫尔大学（University of Hull, UK）
1996-1999: 工学博士，英国布鲁内尔大学机械工程系 (Brunel University, UK)
2000-2003: 研究员，英国布鲁内尔大学计算数学研究所 (Brunel Institute of Computational Mathematics, UK)
2003-2007: 研究员(永久职位)，英国布里斯托大学航天工程系（University of Bristol,UK）
2008-2009: 讲师，英国莱斯特大学工程系（University of Leicester,UK）

2000年由讲师破格晋升为教授，并开始担任燕山大学兼职教授
从2009年至今，全职担任燕山大学机械工程学院教授

EDUCATION:
1996 -1999, PhD, Mechanical Engineering, Brunel University, UK
1987 -1990, MSc, Solid Mechanics, Yanshan University, PR China
1983 -1987, BSc, Mechanical Engineering, Yanshan University, PR China

EMPLOYMENT HISTORY:
Dec 2000 - Present, Professor of Mechanical Engineering,
School of Mechanical Engineering, Yanshan University, China
Jan 2008 - Dec 2008, Lecturer in Mechanics of Materials,
Department of Engineering, University of Leicester, UK
Mar 2003 - Dec 2007, Research Fellow in Aerospace Structure (permanent position),
Department of Aerospace Engineering, University of Bristol, UK
Sep 1999 - Feb 2003, Research Fellow in Material Processing Modelling,
Institute of Computational Mathematics, Brunel University, UK
Nov 1995 - Apr 1996, Visiting Scholar,
Department of Engineering Design and Manufacturing, University of Hull, UK
Aug 1990 - Oct 1995, Lecturer in Mechanical Engineering,
Department of Mechanical Engineering, Yanshan University, China

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