



中国计量学院硕士生导师信息表

基本信息

姓名:	严天宏	性别:	男	学位:	博士
职称:	教授	一级学科:	控制科学与工程	二级学科:	检测技术与自动化装置
二级学院:	机电工程学院	一级学科2:	力学	二级学科2:	一般力学与力学基础
研究方向:	动力学分析与优化 模态分析与测试 振动与噪声控制 精密机电系统与伺服控制			办公地点:	杭州下沙学源街258号院
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在研课题

- [1] 2010年6月获批 浙江省“杰出青年”基金资助;
 - [2] 2010年9月“高速超精系统的耦合动力学建模与误差补偿模型研究”获批国家自然科学基金资助(2011.1-2013.12);
 - [3] 2010年11月,获得流体动力与机电系统国家重点实验室开放基金资助;
 - [4] 2011年01月,获得数字制造与装备技术国家重点实验室开放基金资助;
 - [5] 2011.03 某大型叉车的振动传递及模态分析测试及动力学优化;
 - [6] 2013.03 某大型的护顶架焊接变形分析与预测及关键控制参数研究。
- 等

获奖情况

- 【1】2006 年1月 被 上海微电子装备有限公司 评为“先进员工”;
- 【2】2006年8月 获得上海“浦江人才计划”(A类资助),于2008年8月获评“出色地”完成了任务;(★)
- 【3】2008年1月,主持的863重大专项子项目“光刻机电联合仿真与虚拟试验台”被评为优秀科技成果奖;
- 【4】2008年1月,主持的863重大专项子项目“超精密主动减振控制与智能诊断平台”被评为优秀科技成果奖;
- 【5】2008年1月 获得 教育部“自然科学奖”(一等奖)一项;(★)
- 【6】2010年01月,获得浙江省新世纪151人才工程资助(第三层次)。(★)
- 【7】2011年01月,获得浙江省新世纪151人才工程资助(第二层次)。(★)
- 【8】2011年01月,获评校“先进科技工作者”;
- 【9】2011年01月,获评校“优秀班主任”;

近期发表的主要成果

- 【1】 T.H. Yan*, B.He, X.D. Chen, X.S.Xu, 2013. Discrete-Time Sliding Mode Control With Computation Time Delay And Compensation For Hard Disk Drives. *Mathematical Problems in Engineering, An International Journal*. Vol.2013, Paper 2013 (SCI, IF= 0.777). In Pressing
- 【2】 B.He, B.R.Wang, T.H.Yan, Y.Y. Han, 2013. A Distributed Parallel Motion Control for the Multi-thruster Autonomous Underwater Vehicle, *Mechanics Based Design on Structures and Machines, An International Journal*. Vol. 42 (2): 236-244. 2013 (SCI, EI).
- 【3】 T.H.Yan*, X.S. Xu, J.Q. Han, et al, 2011. Optimization of Sensing and Feedback Control for Vibration/Flutter Rotating Disk by PZT Actuators via Air Coupled Pressure. *Sensors*. 2011; 11(3):3094-3116. (SCI,IF=1.774)
- 【4】 X.S.Xu, T.H. Yan*, X.Z.Tao, T.R. Zhu, D.Li, 2012, Generating NC Program based on Template for Mass Customized Product, *Assembly Automation*, Vol.32(3): 1-6. (SCI, IF=0.645)
- 【5】 J.Q.Han, X.F.Wang, T.H.Yan, X.B.Song, et al. 2012, A Novel Method of Temperature Compensation For Piezoresistive Microcantilever-Based Sensors, *Review of Scientific Instruments*, 83(3):035002/1~6 (SCI, IF=1.598)
- 【6】 B.He, S.J.Zhang, T.H. Yan*, Tao Zhang, Y. Liang, H.J. Zhang, 2011. A Novel Combined SLAM Based on RBPF-SLAM and EIF-SLAM for Mobile System Sensing in a Large Scale Environment, *Sensors*, Vol.11(3), pp.10197-10219. (SCI,IF=1.598)
- 【7】 B.He, H.J. Zhang, C.Li, S.J. Zhang, Y. Liang, T. H. Yan*. 2011. Autonomous Navigation for Autonomous Underwater Vehicles Based on Information Filters and Active Sensing. *Sensors*. Vol.11(11):10958-10980 (SCI,IF)
- 【8】 T.H.Yan, H.Y.Pu, X.D.Chen, Q.Li, C.Xu, 2010, Integrated Hybrid Vibration Isolator with Feedforward Compensation for Fast High-Precision Positioning X/Y Tables. *IOP Journal of Measurement Science and Technology*. 2010; Vol. 21(6): 065901-065910. (SCI, EI)
- 【9】 T.H.Yan, et al, 2010, The Discrete-time Sliding Mode Control for High-Precision Stages of Micro-Electronics Equipments, *Control Engineering (Chinese Journal)*, Vol. 17(4): 430-435.
- 【10】 T.H.Yan, H.Y.Pu, Q.Li, C. Xu, X. D. Chen, 2010, Dynamic Absorber Design for Actuator Arm of Hard Disk Drive on Impact Resist Improvement. *Mechanics Based Design on Structures and Machines, An International Journal*. Vol.38 50-73 (SCI, EI).
- 【11】 J.Lei, X.Luo, X.D. Chen, T.H.Yan, 2010, Modeling And Analysis of A 3-DOF Lorentz-Force-Driven Planar Motion Stage For Nanopositioning, *Mechatronics*, Vol.20(5), pp.553 - 565, 2010 (SCI, EI)
- 【12】 T.H.Yan, C.Xu, Q.Li, X.D. Chen, 2010, Experimental Study on Multisensing Control with Vibration Control for High-Precision X/Y Stages, *The 10th WSEAS International Conference on ROBOTICS, CONTROL and MANUFACTURING TECHNOLOGY (ROCOM '10)*, Hangzhou, China.
- 【13】 T.H.Yan, W.Wang, X.D.Chen, Q.Li, C.Xu, 2009, Design of a Smart Ultrasonic Transducer for Interconnecting Machine Applications. *Sensors*. 2009; 9(6):4986-5000. (SCI, EI)
- 【14】 T.H.Yan, X.D.Chen, R.M.Lin, 2008, "Servo System Modeling and Reduction of Mechatronic System Through Finite Element Analysis for Control Design", *Mechatronics*, Vol.18 (9):466-474, 2008. (SCI, EI)
- 【15】 T.H.Yan, X.D.Chen, W.F.Dou, R.M.Lin, 2008, "Feedback Control of Disk Vibration and Flutter by Distributed Self-Sensing Actuators". *Mechanics of Structures and Machines, An International Journal*. 36(3): 1-23, 2008 (SCI, EI)
- 【16】 T.H.Yan, X.D.Chen, R.M.Lin, 2007, "Vibration Interaction Characteristics of Disks-Spindle in Hard Disk Drives" *International Journal for Mechanics Based Design of Structures & Machines*. Vol.35 (1): 97-112, 2007. (SCI, EI)
- 17 T.H.Yan, R.M.Lin, 2006, "General Optimization of Sizes or Placement For Various Sensors/Actuators in Structure Testing and Control". *IOP Journal of Smart Material and Structures*. Vol. 15(1), 2006. (SCI, EI)
- 18 T.H.Yan, G.W.Zhang, R.M.He, 2006, "New Progresses on Dynamics, Vibration & Control." (Book in Chinese) Chapter: Integrated Hybrid Vibration Isolating Technology for High-Precision Semiconductor Equipments." Beijing: China National Astronautics Press, July 2006. (PDF)
- 19 T.H.Yan, W.Chen, 2005, "Quasi-Rigid Mode of Bond Head Assembly in Wire Bonding Machines and its Improvement". *International Journal for Mechanics Based Design of Structures & Machines*. Vol.33 (4) 2005. (SCI, EI)
- 20 T.H.Yan, R.M.Lin, 2004, "Dual-Mass Absorber for the Head Actuator Assembly of Hard Disk Drives". *An International Journal for Mechanics Based Design of Structures & Machines*. Vol. 32(2), 2004. (SCI, EI)
- 21 T.H.Yan, R.M. Lin, 2003, "Experimental Investigation on Pivot Nonlinearity and Accurate Compensation for Servo

Control in Hard Disk Drive.” IEEE Transactions of Magnetics. Vol.39(2), March 2003. (SCI, EI)

22 T.H.Yan, R.M.Lin, 2004, “Vibration Characteristics of Disks-Spindle System Interaction In Hard Disks.” IEEE/ASME Asia-Pacific Magnetic Recording Conference Korea, 2004.

23 T.H.Yan, R.M.Lin, 2002, “Finite Element Modeling and Modal Testing of Vibration Characteristics of Disk Drives.” International Modal Analysis Conference (IMAC)-XX, Los Angeles, California USA, Feb.4-7, 2002.

24 T.H.Yan, R.M.Lin, 2002, “Servo system modeling and Reduction for Hard Disk Drives through Finite Element Method. ASME 13th International Symposiums for Information Storage and Processing System, Santa Clara, California USA, Jun. 18, 2002.

25 T.H.Yan, R.M.Lin, 2002, “Discrete-Time Sliding Mode Control With Computation Time Delay And RRO Compensation For Hard Disk Drives.” IEEE/ASME Asia-Pacific Magnetic Recording Conference 2002, Singapore, Aug. 26-28, 2002.

26 T.H.Yan, R.M.Lin, 2002, “Discrete-Time Sliding Mode Repetitive Control for Track-Following System of An Optical Drives.” IEEE/ASME Asia-Pacific Magnetic Recording Conference 2002, Singapore, Aug. 26-28, 2002.

27 T.H.Yan, R.M.Lin, 2002, “Feedback Control of Disk Vibration and Flutter by Distributed Self-Sensing Actuators.” IEEE/ASME Asia-Pacific Magnetic Recording Conference 2002, Singapore, Aug. 26-28, 2002.

28 R.M. Lin, Y.Y. Wang, T.H.Yan, J.Y.Zhou, 2001, “Compensation for Mechanical Resonance in Head Actuator Assembly Hard Disk Drives by Multi-Sensing Control.” Technical Report for Industry Project (SONY Singapore Resaerch Lab). 2001. Totally 104 pages.

*****Some Papers Published During Tutoring the Master/PhD Candidates*****

29 X.D.Chen, X.Z.Yu, X.M.He, T.H.Yan et al. 2008, Dynamic characteristic analysis of precision long stroke linear motor with air-bearing in optical lithography. Chinese Journal of Mechanical Engineering(English Edition). Vol.21 (2), 2008

30 X.D.Chen, H.Z. Guo, T.H.Yan, X.Z.Yu. 2007, The dynamics characteristic and optimization of the Main Plate of Lithography Equipment. Mechanical Engineering of China (In Chinese). Vol.18(21), 2007.

31 Y. Sun, X.D.Chen, T.H.Yan, W.C.Jia, 2006, Modules Design of a Reconfigurable Multi-Legged Walking Robot, IEEE International Conference on Robotics and Biomimetics, 2006. ROBOT'06. On page(s): 1444-1449, ISBN: 1-4244-0570-X

32 W.C.Jia, X.D. Chen, T.H.Yan, Y.Sun, M.H.Zhou, 2006, Biological Modeling Control of a Multilegged Walking Robot, IEEE/RSJ International Conference on Intelligent Robots and Systems, 2006, On page(s): 5737-5742, ISBN: 1-4244-0259-9

33 X.D.Chen, W.Jiang, T.H.Yan, 2008, “Symbolic Formulation of Linearized ODEs via Matrix Transformation for Vibration Analysis of Multibody Systems” Chinese Journal of Mechanical Engineering. Vol44(6), June 2008.

34 T.J. Li, T.H.Yan, X.F.Zhang, 2007, Dynamic Analysis And Simulation of A Spherical Omni-directional Rolling Robot. Journal of Xidian University, Vol.34, No.3: 414 ~ 417,471, 2007.

35 T.J.Li, F.J.Wang, T.H.Yan, 2008, Case-based Reasoning Method for Fault Recovery with Expanded Similarity Space, Journal of Xidian University (Natural Science), Vol.35(3):499-503, June 2008.

36 S. Y. Zhang, X. D. Chen, H. Zhao, T.H. Yan, 2008, Motion Control of a Precise Wafer Stage, Chinese Journal Mechanical Engineering, Vol.19, No.12: 1474-1479. June 2008.

37 T.J.Li, T.H.Yan etc, 2007, Dynamic Modeling and Simulation of Spherical Omnidirectional Rolling Robot, Journal of System Simulation, Vol.19, No.18: 4239 ~ 4242, 2007.

38 S. Y. Zhang, X. D. Chen, H. Zhao, T.H.Yan, 2008. Motion Control of Super Precision Stage, Journal of Huazhong University of Science & Technology, Vol.36 (10): 37-40. June 2008.

39 X. S. Xu, X. Cheng, T. H. Yan, 2011, Methods on Parameter Calibration and Tolerance Identification for Master Product Variant Model. Journal of Mechanical Engineering (Chinese), Vol.47(1): 132-137, Jan 2011.

等等

申请的专利(包括第二作者及以后):

发明专利 (34)项:(近4年内发明授权19项)

【01】200710173581.9 一种剪式提升装置

- 【02】200710172427. X 一种工件台平衡质量定位系统(2011-6-15授权)
- 【03】200710172429. 9 工件台平衡质量定位系统
- 【04】200710173146. 6 单孔形标记对准信号处理方法
- 【05】200710173575. 3 光刻设备的探测装置与探测方法
- 【06】200810033058. 0 一种抓手角度可调的夹取装置
- 【07】200710172938. 1 基于自适应纠正处理提高对准信号处理精度的方法(2009. 11. 11授权)
- 【08】200710045581. 0 一种精密提升装置
- 【09】200510026019. 4 一种精密减振和定位装置
- 【10】200510029686. 8 一种随机响应信号测量与分析的方法
- 【11】200510112113. 1 一种精密定位和调整工装(2009. 6. 24授权)
- 【12】200610025895. X 一种复合减振式光刻装置(2009. 3. 11授权)
- 【13】200610147842. 5 悬挂式支撑成像系统及光刻装置
- 【14】200710040650. 9 一种传输控制装置及其控制方法(2010. 6. 9授权)
- 【15】200710040997. 3 一种多链接传输控制方法
- 【16】200710041769. 8 一种旋转交换的双台系统(2009. 6. 24授权)
- 【17】200710042417. 4 光刻机工件台平衡定位系统(2009. 5. 27授权)
- 【18】200710043324. 3 垂向微调及重力补偿装置与光刻机(2010. 1. 6授权)
- 【19】200710041226. 6 光刻机工件台平衡定位系统(2009. 8. 12授权)
- 【20】200710044559. 4 光刻装置的对准方法及系统(2009. 8. 12授权)
- 【21】200710044848. 4 脉冲信号的逼近方法 (2009. 6. 24授权)
- 【22】200710046060. 7 气缸活塞减振装置(2009. 6. 24授权)
- 【23】200810036911. 4 二维编码归一化对准标记组合及其对准方法和对准系统(2011. 5. 11授权)
- 【24】200810036910. X 归一化对准标记组合及其对准方法和对准系统(2011. 5. 11授权)
- 【25】200810038391. 0 光刻设备的探测装置、探测方法及制造方法(2010. 6. 2授权)
- 【26】200810037649. 5 六自由度微动台(2010. 6. 9授权)
- 【27】200810200646. 9 脉冲波强度采样同步的校准方法与系统
- 【28】200810200919. X 主动减振系统及其预见控制方法(2010. 10. 27授权)
- 【29】200810200647. 3 信道增益数字均衡自适应校准系统与方法(2011. 11. 30授权)
- 【30】200810201311. 9 主动减振隔振装置及主动减振隔振系统(2010. 6. 9授权)
- 【31】200810200917. 0 一种同轴度检测装置
- 【32】200910045207. X 一种减振支撑装置
- 【33】200780050936. 3 可逆极性解码器电路及相关方法
- 【34】201010121928. 7 一种活塞往复式压缩机“无余隙”机型的分体型吸气阀体及安装方法

实用新型专利 (7)项:

- 【35】200720074739. 2 活塞气缸减振机构
- 【36】200720076163. 3 垂向微调及重力补偿机构
- 【37】200620041223. 3 一种可以转出的带有记忆功能的六自由度精密调节装置
- 【38】200620049444. 5 一种柔性支撑机构
- 【39】200720067425. X 一种大阻尼精密柔性支撑机构
- 【40】200720076162. 9 一种工件台平衡定位装置
- 【41】200720076166. 7 一种精密提升装置

带领课题组共申请专利41项, 其中34项发明专利, 19项发明专利业已授权。