

# CURRICULUM VITAE

*Christophe Pierre*



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## EDUCATION

- **Duke University**, Department of Mechanical Engineering and Materials Science  
Doctor of Philosophy, 1985  
Dissertation: “Analysis of Structural Systems with Parameter Uncertainties”  
Thesis Advisor: Earl H. Dowell
- **Princeton University**, Department of Mechanical and Aerospace Engineering  
Master of Science, 1984  
Thesis: “An Incremental Approach to the Theory of Dynamic Instability of Plates”  
Thesis Advisor: Earl H. Dowell
- **Ecole Centrale des Arts et Manufactures de Paris, France**  
Option Air-Espace (Department of Aerospace Engineering)  
Diplôme d’Ingénieur de l’Ecole Centrale de Paris, 1982

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## EXPERIENCE

### *Positions at McGill University*

- Dean, Faculty of Engineering, **7/2005-present**
- Professor, Department of Mechanical Engineering, **7/2005-present**
- Canada Research Chair in Structural Dynamics and Vibration – Tier I, **10/2005-present**

### *Positions at the University of Michigan*

- Adjunct Professor, **2005-2009**
- Stephen P. Timoshenko Collegiate Professor of Mechanical Engineering, **3/2002-6/2005**
- Associate Dean for Academic Programs and Initiatives, Horace H. Rackham School of Graduate Studies, **1999-2005**
- Professor of Mechanical Engineering, **1997-2005**
- Associate Chairman, Department of Mechanical Engineering and Applied Mechanics, **1996-1999**
- Chair, Mechanical Engineering Graduate Program, Rackham School of Graduate Studies, **1996-1998**
- Director, Academic Services Office, Department of Mechanical Engineering, **1996-1998**
- Associate Director, Automotive Research Center, College of Engineering, **1994-2005**
- Associate Professor of Mechanical Engineering, and Applied Mechanics, **1991-1997**
- Assistant Professor of Mechanical Engineering, and Applied Mechanics, **1985-1991**

### ***Positions at Other Institutions or Organizations***

- Ecole Centrale de Nantes, France, Professeur Invité, **6-7/2010, 7/2004, 5/2003, 2/2003, 9-12/2001, 11-12/2000**
- Ecole Centrale de Paris, France, Professeur Invité, **8/92-12/92**
- Duke University, Graduate Research Assistant, **8/83-8/85**
- Princeton University, Graduate Research Assistant, **7/82-8/83**
- Avions Marcel Dassault- Breguet Aviation, France, Research Engineer, **3/82-7/82**

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### **HONORS AND AWARDS**

- Fellow, The American Academy of Mechanics, 2009
- N. O. Myklestad Award, The American Society of Mechanical Engineers, 2005
- Best Paper Award, ASME Design Engineering Division, Vehicle Design Committee, “Function-Oriented Material Design for Next-Generation Ground Vehicles,” ASME Paper IMECE2003-43326, 2003 ASME International Mechanical Engineering Congress and Exposition, Washington, D.C.
- Stephen P. Timoshenko Chaired Professorship, College of Engineering, University of Michigan, 2002
- College of Engineering Research Excellence Award, University of Michigan, 1998
- Fellow, The American Society of Mechanical Engineers
- Fellow, Committee on Institutional Cooperation, Academic Leadership Program, 1997
- 1995 Faculty Service Award, Department of Mechanical Engineering and Applied Mechanics, University of Michigan
- 1993 Faculty Research Award, Department of Mechanical Engineering and Applied Mechanics, University of Michigan
- Exxon Foundation Award for Outstanding Teaching by an Assistant Professor, Department of Mechanical Engineering and Applied Mechanics, University of Michigan, 1986

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### **RESEARCH INTERESTS**

- Structural dynamics and vibrations
- Nonlinear dynamics
- Elastic wave propagation
- Aeroelasticity
- Vibration localization phenomena in disordered periodic structures
- Probabilistic structural dynamics with parameter uncertainties
- Mid- and high-frequency vibration transmission
- Dynamics of mistuned bladed-disk assemblies
- Dynamics of rotating systems
- Normal modes and modal analysis for nonlinear systems
- Dynamics of dry-friction damped systems
- Automotive and aerospace structure applications
- Structural design and topology optimization

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## RESEARCH GRANTS AND CONTRACTS<sup>1</sup>

### *Extramural Awards:*

“Simulation of Clutch Dynamics”

Ford Motor Company Contract No. 47-1-F10725

September 1985-May 1986

\$10,414

“Localization of Vibrations by Structural Irregularity”

National Science Foundation Grant MSM-8700820, Dynamic Systems and Control Program

May 1987-October 1989

\$142,750

“Research Experience for Undergraduates”

National Science Foundation, Supplement to Grant MSM-8700820

May 1989-October 1989

\$8,000

“Structural Stiffness Variations in Flexible Multibody Dynamic Systems”

(Substitute Principal Investigator for Robert R. Ryan)

National Science Foundation Grant MSM-9909430, Dynamic Systems and Control Program

September 1988-August 1990

\$70,000

“Localization Phenomena in Structural Dynamics”

National Science Foundation Grant MSS-8913196, Dynamic Systems and Control Program

January 1990-June 1993

\$198,942

“Effects of Mistuning on the Forced Response of Turbomachinery Rotors”

NASA Lewis Grant NAG3-1163, Structural Dynamics Branch

June 1990-December 1993

\$127,409

“Research in Power Steering Systems”

General Motors, Saginaw Division

April 1991-December 1993

\$92,968

“Design Tools for Predicting the Forced Response of Mistuned Bladed Disks”

Air Force Research Laboratory (Wright Patterson Air Force Base)

September 1992-August 1996

\$320,712

“An Invariant Manifold Approach to Modal Analysis of Nonlinear Structural Systems”

(PI, with S. W. Shaw as Participating Investigator)

National Science Foundation Grant MSS-9201815, Dynamic Systems and Control Program

September 1992-August 1995

\$282,780

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<sup>1</sup> Sole Principal Investigator (PI) unless noted otherwise

“Studies of the Dynamics of Turbomachinery Rotors”  
SNECMA (Société Nationale d'Etude et de Construction de Moteurs d'Aviation)  
July 1992-March 1996  
\$101,464

“Modal Analysis Techniques for Nonlinear Large-Scale Structural Systems”  
Army Research Office Grant DAAH04-93-G-0035, Structural Mechanics Branch  
January 1993-January 1997  
\$256,317

“Normal Modes and Modal Analysis for Nonlinear Structural Systems”  
Army Research Office AASERT Grant DAAH04-93-G-0390  
September 1993-August 1996  
\$104,000

“Automotive Research Center (ARC): A Center of Excellence for Modeling and Simulation”  
U.S. Army TARDEC (Tank Automotive Command)  
September 1994-August 1997

- Total ARC award: \$7,407,049
- Associate Director of Center for Thrust Area “Modeling and Simulation of Vehicle Structures;”  
Thrust Area award: \$1,806,428
- PI for project “Vibration Transmission in Complex Vehicle Structures;” \$233,669

“Experimental Investigations of the Effects of Mistuning on the Forced Response of Blade Assemblies”  
NASA Lewis Research Center, Structural Dynamics Branch  
April 1996-April 1999  
\$139,121

“Design Guidelines and Realistic Modeling for Vibratory Response of Mistuned Bladed Disks”  
Air Force Research Laboratory (Wright Patterson Air Force Base)  
September 1996-March 2001  
\$362,378

“Studies of the Dynamics of Dry Friction Damped Blade Assemblies”  
SNECMA (Société Nationale d'Etude et de Construction de Moteurs d'Aviation)  
July 1996-June 1998  
\$76,825

“Mid-Frequency Vibration Analysis of Complex Structures”  
National Science Foundation Grant CMS-9634954, Dynamic Systems and Control Program  
January 1997-June 2000  
\$166,480

“Non-Linear Modal Analysis and Component Mode Synthesis of Large-Scale Structural Systems”  
(PI, with S. W. Shaw, Michigan State University, as sub-contractor)  
Army Research Office, Structural Mechanics Branch  
March 1997-February 2000  
\$222,244

“Automotive Research Center (ARC): A Center of Excellence for Modeling and Simulation”  
U.S. Army TARDEC (Tank Automotive Command)  
September 1997-April 1998

- Total ARC award: \$1,500,000
- “Modeling and Simulation of Vehicle Structures” Thrust Area award: \$366,000
- “Vibration Transmission in Complex Vehicle Structures” project award: \$47,500

“Experiment-Based Development of Phenomenological Mistuning Models for Bladed Disks”  
(PI, with S. L. Ceccio as Participating Investigator)  
Air Force Office of Scientific Research  
October 1997-October 2000  
\$317,426

“An Electronic Speckle Pattern Interferometry System for the Study of Mistuned Bladed Disks”  
(PI, with S. L. Ceccio as Participating Investigator)  
Air Force Office of Scientific Research (DURIP Equipment Program)  
February 1998-July 1999  
\$140,000

“Automotive Research Center (ARC): A Center of Excellence for Modeling and Simulation”  
U.S. Army TARDEC (Tank Automotive Command)  
May 1998-December 2003

- Total ARC award: \$12,500,000
- “High Performance Structures and Materials” Thrust Area award: \$2,500,000 (approximate)
- PI for project “Vibration Transmission in Complex Vehicle Structures”: \$950,000 (approximate)

“Studies of the Dynamics of Dry Friction Damped Blade Assemblies”  
SNECMA (Société Nationale d'Etude et de Construction de Moteurs d'Aviation)  
September 1998-August 2000  
\$92,993

“New Models for Recruiting and Retention in Science, Engineering, and Mathematics”  
National Science Foundation Minority Graduate Education (MGE) Program  
Project Director, with Graduate School Dean Earl Lewis as Principal Investigator  
October 1998-September 2004  
\$2,700,000

“Design, Analysis, and Fabrication of Mistuned Bladed Disks”  
Air Force Research Laboratory (Wright Patterson Air Force Base)  
September 1999-January 2000  
\$21,060

“Identification of Blade Mistuning Parameters for Blisks”  
NASA Glenn Research Center, Structural Dynamics Branch  
March 2000-February 2001  
\$39,000

“Faculty for the Future—Engineering and Science Program”  
General Electric Foundation  
July 2000-December 2003

\$225,000

“Experiment-Based Development and Validation of Mistuning Models for Bladed Disks”

(PI, with S. L. Ceccio and M. P. Castanier as Participating Investigators)

Air Force Office of Scientific Research

January 2001-January 2004

\$457,456

“Efficient Analysis of Low- to Mid-Frequency Vibration and Power Flow via Component-Mode-Based Methods”

(PI, with M. P. Castanier as Participating Investigator)

General Motors

December 2000-June 2002

\$91,031

“Advanced Vibration Analysis Tools and New Strategies for Robust Design of Turbine Engine Rotors”

(PI, with M. P. Castanier as Participating Investigator)

NASA Glenn Research Center

May 2001-May 2005

\$427,061

“Model Reduction Techniques for Large-Amplitude Vibrations of Complex Nonlinear Structures”

(PI, with S. W. Shaw, Michigan State University, as sub-contractor)

Army Research Office, Structural Mechanics Branch

June 2001-December 2004

\$225,000

Mid-Frequency Dynamics of Complex Structural Systems: Assessing the State-of-the-Art and Defining Future Research Directions

(PI, with M. P. Castanier as Participating Investigators)

Air Force Office of Scientific Research

June-December 2001

\$25,000

“Analysis and Design of Dry Friction Dampers in Bladed Disk Assemblies”

SNECMA (Société Nationale d'Etude et de Construction de Moteurs d'Aviation)

September 2001-December 2004

\$222,233

“Scanning Laser Vibrometry System for Mistuned Bladed Disk Vibration Diagnostics”

(PI, with S. L. Ceccio and M. P. Castanier as Participating Investigators)

Air Force Office of Scientific Research (DURIP Equipment Program)

April 2003-April 2004

\$159,000

“Next-Generation Modeling, Analysis, and Testing of the Vibration of Mistuned Bladed Disks”

(PI, with S. L. Ceccio and M. P. Castanier as Participating Investigators)

Air Force Office of Scientific Research

January 2004- December 2006

\$288,352

“Vibration Absorbers for Systems with Cyclic Symmetry”  
(PI, with M. P. Castanier as Participating Investigator; collaborative project with Michigan State U.)  
National Science Foundation Grant CMS-0408842, Dynamic Systems and Control Program  
August 2004-July 2007  
\$130,000 (UM portion)

“Multi-Stage Modeling of Turbine Engine Rotors”  
(co-PI, with M. P. Castanier as Principal Investigator)  
Pratt & Whitney  
April 2004-December 2005  
\$312,536

“UM-ECN Doctoral Student Exchange”  
Ecole Centrale de Nantes, France  
November 2002-October 2005  
\$25,888

“The Michigan AGEPE Alliance”  
National Science Foundation Minority Graduate Education (MGE) Program  
Co-PI and Project Director, with Graduate School Dean Steven Kunkel as Principal Investigator  
October 2004-September 2009 (resigned position 8/31/2005)  
\$6,000,000

“Automotive Research Center (ARC): A Center of Excellence for Modeling and Simulation”  
U.S. Army TARDEC (RDECOM)  
Co-PI, with Dennis Assanis as PI  
July 2004-June 2009 (resigned position 8/31/2005)

- Total ARC award: \$20,000,000
- “High Performance Structures and Materials” Thrust Area award: \$4,065,135
- PI for projects “Vibration Transmission in Complex Vehicle Structures” and “Structural Dynamics with Parameter Uncertainties”: \$1,302,025

“Council of Graduate Schools (CGS) Ph.D. Completion Project”  
Co-PI, with Steven Kunkel as PI  
Council of Graduate Schools (Pfizer, Inc. is prime sponsor)  
November 2004-May 2007  
\$85,000

“Experimental, Computational, and Design Tools for Turbomachinery Rotor Vibration”  
PI, with M. P. Castanier as Participating Investigator  
General Electric Company  
April 2005-June 2010 (resigned position 8/31/2005)  
\$1,392,231

“Canada Research Chair in Structural Dynamics and Vibration–Tier I”  
Natural Sciences and Engineering Research Council of Canada (NSERC)  
October 2005-September 2012  
CAD\$1,400,000 (research portion: CAD\$525,000)

“Experimental and Computational Laboratory for the Vibration of Complex Structures”  
Canada Foundation for Innovation–Canada Research Chairs Infrastructure Fund

January 2006  
CAD\$444,043

“Next-Generation Modeling and Analysis of the Vibration of Complex Structural Systems”  
Discovery Grant  
Natural Sciences and Engineering Research Council of Canada (NSERC)  
April 2006-March 2011  
CAD\$ 250,000

“McGill-ECN Research Partnership” (sub-contracts from SNECMA and Electricité de France)  
Ecole Centrale de Nantes, France  
January 2007-October 2008  
€70,320

“Non-Synchronous Vibration due to Internal Radial Clearance in Roller Bearings”  
Pratt & Whitney Canada  
January 2008-December 2010  
CAD\$108,780

“Analysis of Non-Straight Rotors”  
Pratt & Whitney Canada  
January 2008-December 2010  
CAD\$133,560

“Blade-Casing Interaction through Direct Contact in Aircraft Engines”  
SNECMA—Groupe Safran  
January 2007-January 2009  
€95,000

“Désaccordage Volontaire Multi-Etage et Optimisation Structurale Hors Veine”  
SNECMA—Groupe Safran  
January 2008-June 2009  
US\$197,600

“Modélisation de l’Interaction Rotor-Stator: Définition d’une Loi d’Usure de Revêtements Abradables ;  
Conception de Profils d’Aube Robustes au Contact”  
SNECMA—Groupe Safran  
January 2009-January 2011  
€162,000

“Contact Rouet-Carter dans un Moteur d’Hélicoptère”  
TURBOMECA—Groupe Safran  
December 2009-November 2012  
€120,000

“Recherches et Développements numériques en Dynamique Non-Linéaire avec Contact”  
SNECMA—Groupe Safran  
January 2011-July 2012  
€158,000

“Vibration Modeling and Analysis of Non-linear, Non-smooth, Complex Structural Systems—  
Application to Aircraft and Helicopter Turbo-machinery”

Discovery Grant

Natural Sciences and Engineering Research Council of Canada (NSERC)

April 2011-March 2016

CAD\$350,000

***Intramural Awards:***

“Localization of Vibrations by Structural Irregularity”

Faculty Research Grant and Fellowship, Horace H. Rackham School of Graduate Studies

University of Michigan

January 1986-December 1986

\$10,000

“Mode Localization Phenomena in Large Flexible Space Structures”

Office of the Vice President for Research, University of Michigan

June 1987-May 1988

\$8,200

“Localization Phenomena in Structural Dynamics”

Office of the Vice President for Research, University of Michigan

October 1989-December 1989

\$11,102

“A Comprehensive Plan for Restructuring Mechanical Engineering 240” (with N.C. Perkins)

College of Engineering, University of Michigan

Summer 1990

\$4,032

“Normal Modes for Nonlinear Oscillatory Systems”

Office of the Vice President for Research, University of Michigan

June 1991-December 1991

\$14,000

Startup Research Grant

McGill University

July 2005-June 2010

CAD\$190,000

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**PUBLICATIONS**

***Citation Report (from ISI Web of Knowledge on June 2, 2011)***

- Number of citations: 2,140
- h-index: 25

***Articles and Notes in Refereed Journals (submitted papers are not listed)***

C. Pierre and E.H. Dowell, “A Study of Dynamic Instability of Plates by an Extended Incremental Harmonic Balance Method,” *ASME Journal of Applied Mechanics*, Vol. 52, No. 3, 1985, pp. 693-697.

C. Pierre, A.A. Ferri, and E.H. Dowell, "Multi-Harmonic Analysis of Dry Friction Damped Systems Using an Incremental Harmonic Balance Method," *ASME Journal of Applied Mechanics*, Vol. 52, No. 4, 1985, p. 958-964.

C. Pierre and E.H. Dowell, "Localization of Vibrations by Structural Irregularity," *Journal of Sound and Vibration*, Vol. 114, No. 3, 1987, pp. 594-564.

C. Pierre, D.M. Tang, and E.H. Dowell, "Localized Vibrations of Disordered Multi-Span Beams: Theory and Experiment," *AIAA Journal*, Vol. 25, No. 9, 1987, pp. 1249-1257.

C. Pierre, "Eigensolution Perturbation for Systems with Perturbed Boundary Conditions," *Journal of Sound and Vibration*, Vol. 112, No. 1, 1987, pp. 167-172.

C. Pierre, "Comments on Rayleigh's Quotient and Perturbation Theory for the Eigenvalue Problem," *ASME Journal of Applied Mechanics*, Vol. 55, No. 4, 1988, pp. 986-988

P.D. Cha and C. Pierre, "Eigensolution of Periodic Assemblies of Multi-Mode Component Systems," *Journal of Sound and Vibration*, Vol. 129, No. 1, 1989, pp. 168-174.

C. Pierre and R.H. Plaut, "Curve Veering and Mode Localization in a Buckling Problem," *Journal of Applied Mathematics and Physics (ZAMP)*, Vol. 40, 1989, pp. 758-761.

S.T. Wei and C. Pierre, "Localization Phenomena in Mistuned Assemblies with Cyclic Symmetry. Part I: Free Vibrations," *ASME Journal of Vibration, Acoustics, Stress and Reliability Design*, Vol. 110, No. 4, 1988, pp. 429-438.

S.T. Wei and C. Pierre, "Localization Phenomena in Mistuned Assemblies with Cyclic Symmetry. Part II: Forced Vibrations," *ASME Journal of Vibration, Acoustics, Stress, and Reliability in Design*, Vol. 110, No. 4, 1988, pp. 439-449.

C. Pierre and P.D. Cha, "Strong Mode Localization in Nearly Periodic Disordered Structures," *AIAA Journal*, Vol. 27, No. 2, 1989, pp. 227-241.

C. Pierre, "Mode Localization and Eigenvalue Loci Veering Phenomena in Disordered Structures," *Journal of Sound and Vibration*, Vol. 126, No. 3, 1988, pp. 485-502.

C. Pierre, "Root Sensitivity to Parameter Uncertainties: A Statistical Approach," *International Journal of Control*, Vol. 49, No. 2, 1983, pp. 521-532.

S.T. Wei and C. Pierre, "Effects of Dry Friction Damping on the Occurrence of localized Forced Vibrations in Nearly Cyclic Structures," *Journal of Sound and Vibration*, Vol. 129, No. 3, 1989, pp. 397-416.

C. Pierre, "Weak and Strong Vibration Localization in Disordered Structures: A Statistical Investigation," *Journal of Sound and Vibration*, Vol. 139, No. 1, 1990, pp. 111-132.

S.T. Wei and C. Pierre, "Statistical Analysis of the Effects of Mistuning on the Forced Response of Cyclic Assemblies," *AIAA Journal*, Vol. 28, No. 5, 1990, pp. 861-868.

- M.-H. H. Shen and C. Pierre, "Natural Modes of Bernoulli-Euler Beams with Symmetric Cracks," *Journal of Sound and Vibration*, Vol. 138, No. 1, 1990, pp. 115-134.
- P.D. Cha and C. Pierre, "Vibration Localization by Disorder in Assemblies of Mono-Coupled, Multi-Mode Component Systems," *ASME Journal of Applied Mechanics*, Vol. 58, No. 4, 1991, pp. 1072-1081.
- S.W. Shaw and C. Pierre, "Normal Modes and Invariant Manifolds," *Journal of Sound and Vibration*, Vol. 150, 1991, pp. 170-173.
- M.-H. H. Shen and C. Pierre, "Free Vibrations of Beams with a Single-Edge Crack," *Journal of Sound and Vibration*, Vol. 170, No. 2, 1994, pp. 237-259.
- D. Bouzit and C. Pierre, "Vibration Confinement Phenomena in Disordered, Mono-Coupled, Multi-Span Beams," *ASME Journal of Vibration and Acoustics*, Vol. 114, 1992, pp. 521-530.
- S.H. Choi, C. Pierre, and A.G. Ulsoy, "Consistent Modeling of Rotating Timoshenko Shafts Subject to Axial Loads," *ASME Journal of Vibration and Acoustics*, Vol. 114, 1992, pp. 249-259.
- S.W. Shaw and C. Pierre, "Normal Modes for Nonlinear Vibratory Systems," *Journal of Sound and Vibration*, Vol. 164, No. 1, 1993, pp. 85-124.
- C. Pierre and S.W. Shaw, "Mode Localization due to Symmetry-Breaking Nonlinearities," *International Journal of Bifurcation and Chaos*, Vol. 1, No. 2, 1991, pp. 471-475.
- C. Pierre and D.V. Murthy, "Aeroelastic Modal Characteristics of Mistuned Blade Assemblies: Mode Localization and Loss of Eigenstructure," *AIAA Journal*, Vol. 30, No. 10, 1992, pp. 2483-2496.
- C. Pierre, T.E. Smith, and D.V. Murthy, "Localization of Aeroelastic Modes in Mistuned High-Energy Turbines," *Journal of Propulsion and Power*, Vol. 10, No. 3, 1994, pp. 318-328.
- S.W. Shaw and C. Pierre, "Normal Modes of Vibration for Nonlinear Continuous Systems," *Journal of Sound and Vibration*, Vol. 169, No. 3, 1994, pp. 319-347.
- M.P. Castanier and C. Pierre, "Individual and Interactive Mechanisms for Localization and Dissipation in a Mono-Coupled Nearly Periodic Structure," *Journal of Sound and Vibration*, Vol. 168, No. 3, 1993, pp. 479-506.
- S.R. Hsieh, S.W. Shaw, and C. Pierre, "Normal Modes for Large Amplitude Vibration of a Cantilever Beam," *International Journal of Solids and Structures*, Vol. 31, No. 14, 1994, pp. 1981-2014.
- N. Al-jawi, C. Pierre, and A.G. Ulsoy, "Vibration Localization in Dual-Span, Axially Moving Beams. Part I: Formulation and Results," *Journal of Sound and Vibration*, Vol. 179, No. 2, 1995, pp. 243-266.
- N. Al-jawi, C. Pierre, and A.G. Ulsoy, "Vibration Localization in Dual-Span, Axially Moving Beams. Part II: Perturbation Analysis," *Journal of Sound and Vibration*, Vol. 179, No. 2, 1995, pp. 267-287.
- N. Al-jawi, A.G. Ulsoy, and C. Pierre, "Vibration Localization in Band/Wheel Systems: Theory and Experiment," *Journal of Sound and Vibration*, Vol. 179, No. 2, 1995, pp. 289-312.
- M.P. Castanier and C. Pierre, "Lyapunov Exponents and Localization Phenomena in Multi-Coupled Nearly-Periodic Systems," *Journal of Sound and Vibration*, Vol. 183, No. 3, 1995, pp. 493-515.

- D. Bouzit and C. Pierre, "Localization of Vibration in Disordered Multi-Span Beams with Damping," *Journal of Sound and Vibration*, Vol. 187, No. 4, 1995, pp. 625-648.
- D. Bouzit and C. Pierre, "An Experimental Investigation of Vibration Localization in Disordered Multi-Span Beams," *Journal of Sound and Vibration*, Vol. 187, No. 4, 1995, pp. 649-669.
- G. Ottarsson and C. Pierre, "A Transfer Matrix Approach to Free Vibration Localization in Mistuned Blade Assemblies," *Journal of Sound and Vibration*, Vol. 197, No. 5, 1996, pp. 589-618.
- N. Boivin, C. Pierre, and S.W. Shaw, "Non-Linear Normal Modes, Invariance, and Modal Dynamics Approximations of Non-Linear Systems," *Nonlinear Dynamics*, Vol. 8, No. 3, 1995, pp. 315-346.
- D. Murthy, C. Pierre, and G. Ottarsson, "Efficient Design Constraint Accounting for Mistuning Effects in Engine Rotors," *AIAA Journal*, Vol. 33, No. 5, 1995, pp. 960-962.
- N. Boivin, C. Pierre, and S.W. Shaw, "Non-Linear Modal Analysis of Structural Systems Featuring Internal Resonances," *Journal of Sound and Vibration*, Vol. 182, No. 2, 1995, pp. 336-341.
- P.D. Cha and C. Pierre, "A Statistical Investigation of the Forced Response of Finite, Nearly Periodic Assemblies," *Journal of Sound and Vibration*, Vol. 203, No. 1, 1997, pp. 158-168.
- M.P. Castanier and C. Pierre, "Predicting Localization Via Lyapunov Exponent Statistics," *Journal of Sound and Vibration*, Vol. 203, No. 1, 1997, pp. 151-157.
- P.D. Cha and C. Pierre, "Free Vibrations of Uniform Timoshenko Beams with Lumped Attachment," *Journal of Sound and Vibration*, Vol. 211, No. 2, 1998, pp. 273-276.
- G. Ottarsson and C. Pierre, "Vibration and Wave Localization in a Nearly Periodic Beaded String," *Journal of the Acoustical Society of America*, Vol. 101, No. 6, 1997, pp. 3430-3442.
- M.P. Castanier, G. Ottarsson, and C. Pierre, "A Reduced-Order Modeling Technique for Mistuned Bladed Disks," *ASME Journal of Vibration and Acoustics*, Vol. 119, No. 3, 1997, pp. 439-447.
- C. Pierre, M.P. Castanier, and W.-J. Chen, "Wave Localization in Multi-Coupled Periodic Structures: Application to Truss Beams," *ASME Applied Mechanics Reviews*, Vol. 49, No. 2, 1996, pp. 65-86. (Invited)
- G. Ulsoy, C. Pierre, and S. Choi, "Vibration Localization in Rotating Shafts. Part I: Theory," *ASME Journal of Vibration and Acoustics*, Vol. 120, No. 1, 1998, pp. 138-148.
- G. Ulsoy, C. Pierre, and S. Choi, "Vibration Localization in Rotating Shafts. Part II: Experiment," *ASME Journal of Vibration and Acoustics*, Vol. 120, No. 1, 1998, pp. 149-155.
- J.A. Morgan, C. Pierre, and G.M. Hulbert, "Calculation of Component Mode Synthesis Matrices from Measured Frequency Response Functions. Part I: Theory," *ASME Journal of Vibration and Acoustics*, Vol. 120, No. 2, 1998, pp. 503-508.
- J.A. Morgan, C. Pierre, and G.M. Hulbert, "Calculation of Component Mode Synthesis Matrices from Measured Frequency Response Functions. Part II: Application," *ASME Journal of Vibration and Acoustics*, Vol. 120, No. 2, 1998, pp. 509-516.

J.A. Morgan, C. Pierre, and G.M. Hulbert, "Forced Response of Coupled Substructures Using Experimentally-Based Component Mode Synthesis," *AIAA Journal*, Vol. 35, No. 2, 1997, pp. 334-339.

C. Pierre, M.P. Castanier, and S.-B. Choi, "On Developing New Statistical Energy Methods for the Analysis of Vibration Transmission in Complex Vehicle Structures," *Mechanics of Structures and Machines*, Vol. 25, No. 1, 1997, pp. 87-101.

H.H. Yoo, C. Pierre, and R.R. Ryan, "A New Formulation for the Torsional Vibration Analysis of Rotating Cantilever Rods," *KSME International Journal*, Vol. 11, No. 2, 1997, pp. 143-154.

R. Bladh, M.P. Castanier, and C. Pierre, "Reduced Order Modeling and Vibration Analysis of Mistuned Bladed Disk Assemblies with Shrouds," *ASME Journal of Engineering for Gas Turbine and Power*, Vol. 121, No. 3, 1999, pp. 515-522.

P.D. Cha and C. Pierre, "Frequency Analysis of a Linear Elastic Structure Carrying a Chain of Oscillators," *Journal of Engineering Mechanics*, Vol. 125, No. 5, 1999, pp. 587-591.

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Saito, A., Castanier, M. P., and Pierre, C., “Effects of a Cracked Blade on Mistuned Turbine Engine Rotor Vibration,” ASME Paper DETC2007-35663, *Proceedings of the ASME 2007 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference — DETC2007* [Las Vegas, NV, September 4–7, 2007], American Society of Mechanical Engineers, New York, 2007.

A. Batailly, M. Legrand, P. Cartraud, C. Pierre, and J.-P. Lombard, “Study of Component Mode Synthesis Methods in a Rotor-Stator Interaction Case,” *Proceedings of the ASME 2007 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference — DETC2007* [Las Vegas, NV, September 4–7, 2007], American Society of Mechanical Engineers, New York, 2007.

S. Roques, M. Legrand, C. M. Stoisser, P. Cartraud, and C. Pierre, “Development of Beam-to-Beam Contact Detection Algorithms for Rotor-Stator Rubbing Applications,” *Proceedings of the ASME 2007 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference — DETC2007* [Las Vegas, NV, September 4–7, 2007], American Society of Mechanical Engineers, New York, 2007.

M. Legrand, C. Pierre, and P. Cartraud, “Aircraft Engine Structural Rotor-Stator Modal Interaction,” *Proceedings of the Second International Conference on Nonlinear Dynamics*, Kharkov, Ukraine, September 25-28, 2007.

K.V. Avramov, O.K. Morachkovski, C. Pierre, O. Galas and N. Shyriaieva, “Flexural-Flexural-Torsional Nonlinear Vibrations of Pre-Twisted Rotating Beams with Asymmetric Cross Section,” *Proceedings of the Second International Conference on Nonlinear Dynamics*, Kharkov, Ukraine, September 25-28, 2007.

G. Rudnyeva, M. Legrand and C. Pierre, "Aircraft Engine Structural Rotor-Stator Modal Interaction – An Analytical Approach," *Proceedings of the Second International Conference on Nonlinear Dynamics*, Kharkov, Ukraine, September 25-28, 2007.

V. Ganine, M. Legrand, C. Pierre and H. Michalska, "A Reduction Technique for Mistuned Bladed Disks with Superposition of Large Geometric Mistuning and Small Model Uncertainties," *Proceedings of the Twelfth International Symposium on Transport Phenomena and Dynamics of Rotating Machinery*, Honolulu, HI, February 17-22, 2008.

A. Saito, M. P. Castanier, and C. Pierre, "Vibration Response of Cracked Cantilevered Rectangular Plates Near Eigenvalue Loci Veerings", *Proceedings of the 49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference* [Schaumburg, IL, April 7-10, 2008], paper AIAA-2008-1872, 2008.

M. Legrand, A. Batailly, and C. Pierre, "Blade-Tips to Casing Direct Contact Interaction in Aircraft Engines," *Proceedings of the 16ème Colloque Vibrations, Chocs et Bruit*, Lyon, France, June 10-12, 2008.

A. Saito, M. P. Castanier, and C. Pierre, "An Efficient Reduced Order Modeling Technique for Nonlinear Vibration Analysis of Structures with Intermittent Contact", *Proceedings of the 50th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference* [Palm Springs, CA, May 4-7, 2009], paper AIAA-2009-2493, 2009.

D. Laxalde, M. Legrand and C. Pierre, "Modes Non-linéaires Appliqués aux Problèmes de Contact: Application à une Aube de Turbomachine," *Actes du Neuvième Colloque National en Calcul des Structures*, May 25-29 2009, Giens, France.

M. Legrand and C. Pierre, "Modélisation Plastique Bi-linéaire de l'Usure de Matériaux Abradables: Application aux Turbomachines," *Actes du Neuvième Colloque National en Calcul des Structures*, May 25-29 2009, Giens, France.

A. Batailly, M. Legrand, P. Cartraud and C. Pierre, "Evaluation d'une Méthode de Réduction Modale pour la Détection de Cas d'Interaction Modale lors de Contacts Rotor stator," *Proceedings of the 19ème Congrès Français de Mécanique*, August 24-28, 2009, Marseille, France.

A. Batailly, M. Legrand, P. Cartraud, C. Pierre and J.-P. Lombard, "Evaluation of Component Mode Synthesis Methods for the Detection of Modal Interaction through Rotor Stator Contacts," *Proceedings of the ASME 2009 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference — DETC2009-87036*, August 30-September 2, 2009, San Diego, USA.

M. Legrand and C. Pierre, "Numerical Investigation of Abradable Coating Wear Through Plastic Constitutive Law: Application to Aircraft Engines," *Proceedings of the ASME 2009 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference — DETC2009-87669*, August 30-September 2, 2009, San Diego, USA.

D. Laxalde, M. Legrand and C. Pierre, "Nonlinear Modal Analysis of Mechanical Systems with Frictionless Contact Interfaces," *Proceedings of the ASME 2009 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference — DETC2009-87387*, August 30-September 2, 2009, San Diego, USA.

S. Gozen, B. Olson, S.W. Shaw and C. Pierre, "Resonance Suppression in Multi-DOF Rotating Flexible Structures Using Order-Tuned Absorbers," *Proceedings of the ASME 2009 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference — DETC2009-86287*, August 30-September 2, 2009, San Diego, USA.

D. Laxalde, M. Legrand and C. Pierre, "Nonlinear Modes of Large-Scale Structures with Unilateral Contact Constraints," *Proceedings of Euromech Colloquium 503 — Nonlinear Normal Modes, Dimension Reduction and Localization in Vibrating systems*, September 27-October 2, 2009, Frescati, Italy.

A. Batailly, B. Magnain, M. Legrand and C. Pierre, "Validation of a 3D Contact Algorithm for the Study of Blade-Tip/Casing Contact in Turbomachines," *Proceedings of the 8th IFToMM International Conference on Rotordynamics*, September 12-15, 2010, Seoul, Korea.

J. Wu, M. Legrand and C. Pierre, "Non-Synchronous Vibration of Jeffcott Rotor due to Internal Radial Clearance in Roller Bearings," *Proceedings of the 8th IFToMM International Conference on Rotordynamics*, September 12-15, 2010, Seoul, Korea.

B. Magnain, A. Batailly, N. Chevaugeon, M. Legrand and C. Pierre, "Comparative Study of the Use of  $C^1$ -Continuous Finite Elements and Splines for Contact Problems with Large Slidings," IV European Conference on Computational Mechanics (ECCOMAS), May 16-21, 2010, Paris, France.

A. Batailly, M. Legrand and C. Pierre, "Influence of Abradable Coating Wear Mechanical Properties on Rotor-Stator Interaction," ASME paper GT2011-45189, *Proceedings of ASME Turbo Expo 2011*, June 6-10, 2011, Vancouver, Canada.

#### ***Invited Keynotes, Seminars, and Presentations***

- "Analysis of Structural Systems with Parameter Uncertainties," Department of Mechanical Engineering, Michigan State University, East Lansing, Michigan, October 17, 1985.
- "Analysis of Structural Systems with Parameter Uncertainties and Irregularities," General Motors Research Laboratories, Engineering Mechanics Department, Warren, Michigan, June 1, 1987.
- "Analysis of Structural Systems with Parameter Uncertainties and Irregularities," Office National d'Etudes et de Recherches Aéropatiales (ONERA), Chatillon, France, June 29, 1987.
- "Localization Phenomena in Disordered Dynamical Systems," Wayne State University, Mechanical Engineering Department, Detroit, Michigan, November 18, 1987.
- "Localization Phenomena in Mistuned Assemblies with Cyclic Symmetry," NASA Lewis Research Center, Structural Dynamics Branch, Cleveland, Ohio, December 16, 1987.
- "Localization of Vibration by Structural Irregularity," Seminar, Department of Mechanical Engineering, University of California Berkeley, Berkeley, California, April 12, 1988.
- Participant, National Science Foundation Dynamic Systems and Control Program Review, Washington, D. C., June 8, 1988.
- "Localization Phenomena in Mistuned Blade Assemblies," United Technologies Research Center, East Hartford, Connecticut, October 18, 1988.
- "Dynamics of Complex Structural Systems with Parameter Uncertainties," General Motors Research Laboratories, Engineering Mechanics Department, Warren, Michigan, January 10, 1989.
- "Damping-Like Effects of Random Irregularities in Periodic Structures," 12th Canadian Congress of Applied Mechanics (CANCAM '89), Ottawa, Canada, May 28-June 2, 1989.

- “Vibration Localization by Disorder—A Viable Alternative to Damping?,” **Invited Topical Lecture**, IUTAM Symposium on Elastic Wave Propagation and Ultrasonic Nondestructive Evaluation, Boulder, Colorado, July 30-August 3, 1989.
- “Localization Phenomena in Structural Dynamics,” Duke University, Department of Mechanical Engineering and Materials Science, November 9, 1989.
- “Localization Phenomena and Their Applications in Structural Dynamics,” Cornell University, Department of Theoretical and Applied Mechanics, December 6, 1989.
- “Comments on the Dynamics of Mistuned Blade Assemblies,” Institute for Computational Mechanics in Propulsion (ICOMP), NASA Lewis Research Center, Cleveland, Ohio, May 31, 1990.
- “Localization Phenomena in Mistuned Bladed-Disk Assemblies,” General Electric Aircraft Engines, Cincinnati, Ohio, October 16, 1990.
- “Normal Modes in Nonlinear Oscillatory Systems” (with S. W. Shaw), ASME Applied Mechanics Conference, Columbus, Ohio, June 16-19, 1991.
- “Localization Phenomena in Structural Dynamics,” Colloquium on Modern Topics in Mechanics, Northwestern University, Evanston, Illinois, November 8, 1991.
- “Normal Modes for Nonlinear Oscillatory Systems”, Fourth Workshop on Dynamics and Aeroelastic Stability Modeling of Rotorcraft Systems, College Park, Maryland, November 19-21, 1991.
- “Vibration Localization Phenomena in Engineering Structures,” Michigan State University, East Lansing, Michigan, March 12, 1992.
- “Vibration of Space Structures: Application to Localization Phenomena in Truss Beams,” Conservatoire National des Arts et Métiers, France, April 3, 1992.
- “Localisation des Vibrations des Systèmes Périodiques: Structures Spatiales et Turbomachines,” Ecole Centrale de Paris, Chatenay Malabry, France, October 14, 1992.
- “Normal Modes for Nonlinear Dynamical Systems,” Ecole Centrale de Paris, Chatenay Malabry, France, November 25, 1992.
- “Phénomènes de Localisation en Dynamique des Structures,” Séminaire Ile-de France (Polytechnique, Centrale Paris, ENS Cachan) Ecole Normale Supérieure, Cachan, France, November 19, 1992.
- “Localization and Wave Conversion Phenomena in Multi-Coupled Nearly Periodic Structural Systems,” invited contribution to the special session on Anderson localization in acoustics and structural vibration, 125th meeting of the Acoustical Society of America, May 17-21, 1993.
- “Phénomènes de Localisation et de Conversion d'Ondes dans les Structures Presque Périodiques Multi-Couplées,” Colloque National en Calcul des Structures, Giens, France, May 11-14, 1993.
- “Localization Phenomena in Structural Dynamics,” Seminar, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, October 6, 1993.
- “Localization Phenomena in Structural Dynamics,” Seminar, Department of Mechanical and Aerospace Engineering, Arizona State University, Tempe, Arizona, January 28, 1994.
- “Phénomènes de Localisation en Mécanique des Structures,” Laboratoire de Modélisation et Mécanique des Structures, Université Pierre et Marie Curie, Paris, France, November 14, 1994.
- “Localization Phenomena in Structural Dynamics,” Seminar, Department of Aeronautical and Astronautical Engineering, University of Illinois at Urbana-Champaign, Illinois, February 6, 1995.
- “Localization Phenomena in Disordered Structures: Application to Truss Beams,” Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, April 9, 1996.
- “Mid-Frequency Vibration Analysis of Complex Structures,” Ford Research Laboratory, Ford Motor Company, Dearborn, Michigan, October 16, 1996.

- “Modal Analysis Techniques for Nonlinear Large-Scale Structural Systems,” AFOSR/ARO Workshop, Myrtle Beach, South Carolina, September 22-25, 1997.
- “Nonlinear Modal Analysis of Large-Scale Structural Systems,” Seminar, Università degli Studi di Roma La Sapienza, Rome, Italy, November 27, 1997.
- “Localization Phenomena in Imperfect Engineering Structures,” Seminar, Department of Mechanical Engineering, Ohio State University, Columbus, Ohio, February 27, 1998.
- “Localization Phenomena in Imperfect Engineering Structures,” Seminar, Department of Mechanical Engineering, Pennsylvania State University, University Park, Pennsylvania, April 30, 1998.
- “An Efficient, Hybrid Frequency-Time Domain Method for the Dynamics of Large-Scale Dry-Friction Damped Structural Systems,” 35th Annual Technical Meeting of the Society of Engineering Science, Pullman, Washington, September 27-30, 1998.
- “Localization Phenomena in Imperfect Engineering Structures,” Seminar, Department of Aeronautical and Astronautical Engineering, University of Illinois at Urbana-Champaign, Illinois, September 21, 1998.
- “Experimental Investigations of the Effects of Mistuning on the Forced Response of Blade Assemblies,” NASA Lewis Research Center, Cleveland, Ohio, October 5, 1998.
- “Preventing High Cycle Fatigue in Turbine Engine Components,” poster presentation at the Capitol Hill Exhibit on University Research for the National Defense, Cannon Caucus Room, U.S. House of Representatives, Washington, D. C., May 13, 1999.
- “Modal Reduction of a Nonlinear Rotating Beam Through Nonlinear Normal Modes,” Eighth ARO Workshop on Aeroelasticity of Rotorcraft Systems, Pennsylvania State University, State College, Pennsylvania, October 20, 1999.
- “Approximations of Low- to Mid-Frequency Power Flow in Complex Structures,” Seminar, General Motors Proving Grounds, Milford, Michigan, November 18, 1999.
- “Normal Modes and Model Size Reduction for Nonlinear Structural Vibrations,” Seminar, NASA Langley Research Center, Hampton, Virginia, December 8, 1999.
- “Efficient Reduced-Order Modeling of Vibration of Complex Structures,” with Applications to Mid-Frequency Power Flow,” Seminar, General Motors Proving Grounds, Milford, Michigan, March 27, 2000.
- “Phénomènes de Localisation en Dynamique des Structures,” Seminar, Ecole Centrale de Nantes, Nantes, France, November 23, 2000.
- “Localization Phenomena in Imperfect Engineering Structures,” Seminar, Department of Mechanical Engineering, The University of Maryland, College Park, Maryland, April 23, 2001.
- “Dry Friction Damped Systems: Modeling and Dynamics,” Premier Symposium Dynamique des Structures, Société Nationale d'Etude et de Construction de Moteurs d'Aviation (Snecma), Villaroche, France, October 25, 2001.
- “From Localization to Jet Engines: A Case Study of Tech Transfer from Academia to Industry,” Symposium on Future Directions in Dynamics and Controls of Systems and Structures, 2001 ASME International Mechanical Engineering Congress and Exposition, New York, NY, November 2001.
- “Experimental Investigations of the Effects of Mistuning on Bladed Disk Dynamics,” Seminar, NASA Glenn Research Center, Cleveland, Ohio, February 27, 2002.
- “Prediction and Design Strategies to Achieve Light Weight, Reduced NVH, and Improved Durability for Next-Generation Vehicles,” Eight Annual Automotive Research Center (ARC) Conference on Modeling and Simulation of Ground Vehicles, Warren, Michigan, May 14-15, 2002.

- “Localization of Vibration,” Seminar, Department of Mechanical Engineering, Worcester Polytechnic Institute, Worcester, Massachusetts, September 13, 2002.
- “Diversifying the Professoriate,” Panelist, EMERGE (Empowering Minority Engineers/Scientists to Reach for Graduate Education) Workshop 2003, Atlanta, Georgia, April 24-26, 2003.
- “New Capabilities in Structural Simulation, Analysis and Design: Tools and Applications,” Ninth Annual Automotive Research Center (ARC) Conference on Modeling and Simulation of Ground Vehicles, Auburn Hills, Michigan, May 12-13, 2003.
- “Modélisation et Analyse des Vibrations de Roues Aubagées Désaccordées,” Seminar, Electricité de France (EDF), Direction des Etudes et Recherches, Clamart, France, June 2, 2003.
- “Nonlinear Normal Modes and Their Application in Structural Dynamics,” **Keynote Lecture**, Conference *Bifurcations: The Use and Control of Chaos*, 28-30 July 2003, Southampton, United Kingdom.
- “Modeling, Analysis, and Testing of Mistuned Bladed Disks,” Seminar, MTU Aero Engines GmbH, Strukturmechanik, München, Germany, July 23, 2003.
- “Nonlinear Normal Modes and Their Application in Structural Dynamics,” Seminar, Center for Applied Dynamics Research, School of Engineering and Physical Sciences, University of Aberdeen, Scotland, July 31, 2003.
- “Vibration of Complex Automotive Structures: Research Milestones and Challenges,” Seminars, Toyota Motor Corporation Technical Center and Toyota Central R&D Labs, Inc., Aichi, Japan, October 21-22, 2003.
- “Vibration of Complex Automotive Structures: Research Milestones and Challenges,” Seminar, Department of System Design Engineering, Keio University, Yokohama, Japan, October 24, 2003.
- “Analyse Vibratoire des Structures Aérospatiales et Automobiles: Avancées et Défis à Relever,” **Opening Keynote Lecture**, Deuxième Colloque d’Analyse Vibratoire Expérimentale, Blois, France, November 13-14, 2003.
- “Vibration of Complex Aerospace Structures,” Seminar, Universidad Politécnica de Puerto Rico, San Juan, Puerto Rico, January 27, 2004.
- “Nonlinear Normal Modes and Their Application in Structural Dynamics,” Seminar, Conservatoire National des Arts et Métiers, France, March 2, 2004.
- “Vibration of Complex Aerospace and Automotive Structures: Research Milestones and Challenges,” Seminar, Département Dynamique des Structures et des Systèmes Couplés, Office National d’Etudes et de Recherches Aérospatiales (ONERA), Chatillon, France, March 3, 2004.
- “Vibration of Complex Automotive Structures: Research Milestones and Challenges,” Seminar, Department of Mechanical Engineering, Massachusetts Institute of Technology, Massachusetts, March 12, 2004.
- “Vibration of Complex Aerospace and Automotive Structures,” Seminar, Laboratoire de Mécanique et Technologie (LMT), Ecole Normale Supérieure de Cachan, Cachan, France, April 8, 2004.
- “Nonlinear Normal Modes and Their Application in Structural Dynamics,” **Plenary Lecture**, Euromech Colloquium 457 *Nonlinear Modes of Vibrating Systems*, Fréjus, France, June 7-9, 2004.
- “Interface Reduction Methods for Substructuring Analysis of Complex Structural Systems,” Abstract 1055, Sixth World Congress on Computational Mechanics (WCCM VI), Beijing, China, September 5-10, 2004.
- “Vibration of Complex Automotive Structures: Research Milestones and Challenges,” seminar, Department of Automotive Engineering, Jilin University, Changchun, China, September 9, 2004.

- “Nonlinear Normal Modes and Their Application in Structural Dynamics,” **Opening Plenary Lecture**, International Conference on Nonlinear Dynamics-KPI 2004, Kharkov Polytechnical Institute, Kharkov, Ukraine, September 14-16, 2004.
- “Les Modes Nonlinéaires en Dynamique des Structures,” Seminar, Laboratoire de Mécanique et d’Acoustique, Centre National de la Recherche Scientifique, Marseille, France, December 22, 2004.
- “New Capabilities in Structural Dynamics and Vibration Analysis,” Seminar, School of Mechanical Engineering, Tsinghua University, Beijing, China, March 17, 2005.
- “Vibration of Aerospace and Automotive Structures: Research Milestones and Challenges,” seminar, Department of Mechanical Engineering, University of Maryland Baltimore County, Baltimore, Maryland, November 11, 2005.
- “Vibration of Aerospace and Automotive Structures: Research Milestones and Challenges,” seminar, Department of Mechanical and Aerospace Engineering, Clarkson University, Potsdam, New York, April 14, 2006.
- “Vibration of Complex Aerospace and Automotive Structures: Research Milestones and Challenges,” **Plenary Lecture**, Second International Conference on Dynamics, Vibration and Control, Beijing, China, August 23-26, 2006.
- “Nonlinear Modes Focusing on Geometric Nonlinearities with Application to a Rotorcraft Blade,” **Plenary Lecture**, Euromech Colloquium 483 *Geometrically Non-Linear Vibrations of Structures*, Porto, Portugal, July 9-11, 2007.
- “New Challenges in Turbomachinery: Understanding the Rotor-Stator Contact Interaction,” **Opening Plenary Lecture**, Second International Conference on Nonlinear Dynamics, Kharkov, Ukraine, September 25-28, 2007.
- “Nonlinear Normal Modes and Their Application in Structural Dynamics,” Seminar, Institut de Recherche en Génie Civil et Mécanique, Ecole Centrale de Nantes, Nantes, France, July 15, 2010.
- “Numerical Investigation of Abradable Coating Wear through Plastic Constitutive Law: Application to Aircraft Engines,” **Opening Plenary Lecture**, Third International Conference on Nonlinear Dynamics, Kharkov, Ukraine, September 21-24, 2010.
- “Structural Dynamics of Complex Aerospace and Automotive Structures: Research Milestones and Challenges,” **Distinguished Lecture**, Department of Mechanical and Industrial Engineering, University of Toronto, Toronto, Canada, October 8, 2010.

### *Theses*

- “Investigation of Postbuckling Behavior with a Finite Element Model,” Rapport de Stage de Fin d’Etudes, Ecole Centrale des Arts et Manufactures, July 1982.
- “An Incremental Approach to the Theory of Dynamic Instability of Plates,” Master’s Thesis No. 1634-T, Princeton University, October 1983.
- “Analysis of Structural Systems with Parameter Uncertainties,” Ph.D. Dissertation, Duke University, 1985.

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## RESEARCH SUPERVISION AND TEACHING

### *Ph.D. Committees Chaired*

- **Shih-Tzung Wei 1988** “Effects of Structural Irregularities on the Dynamics of Cyclic Structures” (Recipient of the Rackham Pre-doctoral Fellowship and the Applied Mechanics McIvor Award.)

- **Philip D. Cha 1989** “Localized Vibrations of Nearly Periodic Structures with Irregularities”
- **Mo-How H. Shen 1989** “Natural Modes of Cracked Beams and Identification of Cracks”
- **Suhyun Choi 1992** “Vibration Localization in Rotating Shafts” (co-chair with A. G. Ulsoy)
- **Wang-Joe Chen 1993** “Vibration Localization and Wave Conversion Phenomena in a Multi-Coupled, Nearly Periodic, Disordered Truss Beam”
- **Djamel Bouzit 1993** “Experimental and Theoretical Investigations of Localization Phenomena in Multi-Span Beams”
- **Abdulhaffar A. Al-jawi 1992** “Vibration Localization in Dual-Span Axially Moving Elastic Systems” (co-chair with A. G. Ulsoy).
- **Gisli Ottarsson 1994** “Dynamic Modeling and Vibration Analysis of Mistuned Bladed Disks”
- **Matthew P. Castanier 1995** “Dynamic Analysis and Modeling of Multi-Coupled Nearly Periodic Structures” (Recipient of a National Science Foundation Graduate Fellowship and the Applied Mechanics McIvor Award.)
- **Nicolas Boivin 1995** “Non-Linear Modal Analysis of Structural Systems Using Invariant Manifolds”
- **Jeffrey Morgan 1996** “Dynamic Analysis of Coupled Substructures Using Experimentally-Based Component Mode Synthesis”
- **Marlin Kruse 1996** “Dynamics of Mistuned Bladed Disks: Modeling and Experiment”
- **Sung-Bae Choi 1997** “Statistical Energy Methods for Vibration Transmission Analysis of Complex Structures”
- **Jérôme Guillen 1999** “Studies of the Dynamics of Dry-Friction-Damped Blade Assemblies”
- **Eric Pesheck 1999** “Reduced Order Modeling of Nonlinear Structural Systems Using Nonlinear Normal Modes and Invariant Manifolds”
- **Ronnie J. Bladh 2000** “Efficient Predictions of the Vibratory Response of Mistuned Bladed Disks by Reduced Order Modeling”
- **Yung-Chang Tan 2001** “Efficient Modeling of Low- to Mid- Frequency Vibration and Power Flow in Complex Structures”
- **John A. Judge 2002** “Experimental Investigations of the Effects of Mistuning on Bladed Disk Dynamics”
- **Samuel Nacivet**, Ecole Centrale de Lyon, Lyon, France, **2002**, “Modélisation du Frottement en Pied d’Aube par une Approche Fréquentielle” (co-advisor with Professor Louis Jézéquel).
- **Polarit Apiwattanalungarn**, Michigan State University, **2003**, “Model Reduction of Nonlinear Structural Systems Using Nonlinear Normal Modes and Component Mode Synthesis” (co-advisor with Professor Steven Shaw).
- **Dongying Jiang 2003** “Nonlinear Modal Analysis Based on Invariant Manifolds – Application to Rotating Blade Systems” (co-advisor with Professor Steven Shaw; recipient of the Rackham Pre-doctoral Fellowship)
- **Sang-Ho Lim 2004** “Dynamic Analysis and Design Strategies for Mistuned Bladed Disks”
- **Mathias Legrand**, Ecole Centrale de Nantes, Nantes, France, **2005**, “Modèles de prédiction de l’interaction rotor/stator dans un moteur d’avion” (co-advisor with Professor Bernard Peseux).
- **Geng Zhang 2005** “Component-Based and Parametric Reduced-Order Modeling Methods for Vibration Analysis of Complex Structures”
- **Eric (Sanghum) Baik 2005** “Modeling and Design Strategies for the Vibration Response of Turbine Engine Rotors”

- **Soo-Yeol Lee 2006** “Efficient Probabilistic Vibration Analysis of Complex Structures Using Substructuring and Reliability Techniques”
- **Olivier Poudou 2007** “Modeling and Analysis of the Dynamics of Dry-Friction-Damped Structural Systems”
- **Jia Li 2007** “Experimental Investigation of Mistuned Bladed Disks System Vibration”
- **Zhijiang He 2007** “Effects of Aeroelastic Phenomena on the Vibration Localization in Mistuning Bladed Disks”
- **Sang Heon Song 2007** “Vibration Analysis and System Identification of Mistuned Multistage Turbine Engine Rotors”
- **Sébastien Roques**, Ecole Centrale de Nantes, Nantes, France, **2007**, “Modélisation du Comportement Dynamique Couplé Rotor-Stator d’une Turbine en Situation Accidentelle” (co-advisor with Professor Patrice Cartraud)
- **Alain Batailly**, Ecole Centrale de Nantes, Nantes, France, **2008**, “Simulation de l’interaction rotor/stator sur des turbo-machines aéronautiques en configuration non-accidentelle” (co-advisor with Professor Patrice Cartraud)
- **Akira Saito 2009** “Nonlinear Vibration Analysis of Cracked Structures — Application to Turbomachinery Rotors with Cracked Blades” (co-advisor with Research Scientist Matthew Castanier)
- **Vladislav Ganine**, McGill University, **2010**, “Model Order Reduction for Prediction of Turbine Engine Rotor Vibration Response in Presence of Parametric Uncertainties” (co-advisor with Professor H. Michalska)
- **Markus Meingast**, McGill University, in progress
- **Nicolas Salvat**, McGill University, in progress

***MS. Students Supervised (theses and other major projects)***

- **Djamel Bouzit, 1988**, “Vibration Confinement Phenomena in Disordered Multi-Span Beams: A probabilistic Investigation,” M.S. Thesis, MEAM Department, University of Michigan.
- **Frank Fontana, 1995**, “Redesign of Medium Sogevac Pump Assembly Process,” Summer Team Project, Joel Tauber Manufacturing Institute, University of Michigan, on-site research at Leybold S. A., Valence, France.
- **Michael Brewer, 1999**, “Effects of Harmonic Intentional Mistuning on the Free Response of Bladed Disks,” MEAM Department, University of Michigan.
- **Thomas Lagrange, 1999**, “A Study of the Dynamics of Friction-Damped Blade Assemblies: Cyclic Symmetry and Structure-Like Dampers,” M.S. Thesis, MEAM Department, University of Michigan.
- **Jing Wu, 2010**, “Non-Synchronous Vibration due to Internal Radial Clearance in Roller Bearings,” M.Eng. Thesis, Department of Mechanical Engineering, McGill University.
- **Patrice Gratton, 2011**, “Improved Aerodynamic Influence Coefficients for Dynamic Aeroelastic Analyses,” McGill University.
- **Mirunalini Thirugnanasambandam**, McGill University, in progress.
- **Quinn Murphy**, McGill University, in progress.

***Visiting Scholars and Post-Doctoral Fellows Supervised (institution of origin is listed)***

The Structural Dynamics and Vibration Laboratory at McGill University hosts on a continuous basis a number of trainees and visiting research investigators from various institutions internationally.

- **Philip D. Cha, 9/97-12/97**, Visiting Scholar, “Vibration Mode Localization in Complex Structures,” Harvey Mudd College, Claremont, California.
- **Jean-Marc Brimont, 11/00-4/02**, Visiting Scholar, “Model Order Reduction of Dry-Friction-Damped, Mistuned Bladed Disks,” SNECMA, Moissy Cramayel, France.
- **Ronnie J. Bladh, 11/00-6/01**, Post-Doctoral Fellow, “Bladed Disk Vibration,” University of Michigan, Ann Arbor, Michigan.
- **Yung-Chang Tan, 1/01-4/01**, Post-Doctoral Fellow, “Mid-Frequency Vibration in Complex Structures,” University of Michigan, Ann Arbor, Michigan.
- **John A. Judge 1/02-5/02**, Post-Doctoral Fellow, “Experimental Bladed Disk Vibration,” University of Michigan, Ann Arbor, Michigan
- **Sébastien Roques, 4/04-9/04**, Visiting Research Investigator, “Study of Rotor-Stator Modal Interaction in a Turbomachine,” Ecole Centrale de Nantes, Nantes, France.
- **Mathias Legrand, 7/05-8/10**, Post-Doctoral Fellow, “Blade-Casing Interaction through Direct Contact in Aircraft Engines,” McGill University, Montréal, Canada.
- **Gayane Rudnyeva, 6/06-9/06**, Post-Doctoral Fellow, “Parametric Instabilities in Structural Systems with Contact,” McGill University, Montreal, Canada.
- **Galyna Pilgun, 5/07-12/08**, Visiting Scholar, “Nonlinear Modeling and Analysis of Rotor-Stator Interactions in Aircraft Engines,” McGill University, Montréal, Canada.
- **Denis Laxalde, 7/08-present**, Post-Doctoral Fellow, “Intentional Mistuning and Structural Optimization of Multi-Stage Bladed Disks,” McGill University, Montréal, Canada.
- **Alain Batailly, 1/09-present**, Post-Doctoral Fellow, “Modeling of Rotor-Stator Interactions,” McGill University, Montréal, Canada.
- **Luis Boulton, 1/10-3/10**, Visiting Scholar, “Blade-Casing Contact in a Helicopter Turbine Engine,” McGill University, Montréal, Canada.
- **Thomas Dupont, 3/10-6/10**, Visiting Professor, Institut Supérieur de l’Automobile et des Transports, Université de Bourgogne, France.
- **Simon Jones, 1/11-1/13**, Post-Doctoral Fellow, recipient of a McGill Tomlinson Postdoctoral Fellowship, “Reduced-order modeling of mistuned bladed-disk systems using wavelet analysis,” McGill University, Montréal, Canada.
- **Mathias Legrand, 9/10-present**, Research Associate and Manager of Structural Dynamics & Vibration Laboratory, McGill University, Montréal, Canada.

#### *Undergraduate Projects Directed*

- **Robert F. Little**, ME 490 (experimental research in mechanical engineering), experimental research on mode localization, Winter and Spring terms **1989**.
- **Matthew P. Castanier**, ME 490 (experimental research in mechanical engineering), research on mode localization in damped structures, Winter and Fall terms **1989**.
- **Todd Juvonen**, ME 490 (experimental research in mechanical engineering), developed graphic and animation interfaces between in-house reduced modeling code for bladed disk dynamic response, Nastran and Hypermesh, Winter **1995**.

#### *Short Courses and Workshops*

- “Localization Phenomena in Engineering Structures,” Workshop on Complexity in Structures, The Catholic University of America, Washington, D. C., September 27-28, 1989, enrollment 50, participant (sponsored by the Office of Naval Research).

- Six-hour course on “Localization Phenomena in Structural Dynamics,” Universita degli Studi di Roma La Sapienza, Rome, Italy, June 26-28, 1991, enrollment 40, chair.
- Four-hour course on “Wave Propagation and Vibration Transmission in Periodic Structures,” Conservatoire National des Arts et Métiers, Paris, France, November 21 and 28, 1992, enrollment 40, chair.
- “Vibrations des Structures,” 25-hour course taught at the Ecole Centrale de Paris in the DEA (Diplôme d’Etudes Approfondies) Program, Fall 1992, enrollment 35, instructor.
- “Forced Response of Mistuned Bladed Disks,” Workshop on Forced Response Prediction for Turbomachinery, NASA Lewis Research Center, Cleveland, Ohio, August 11, 1993, enrollment 40, participant (sponsored by NASA).
- Eight-hour course on “Localization Phenomena in Structural Dynamics, Nonlinear Modal Analysis, and Mid-Frequency Dynamics of Complex Structures,” Société Nationale d’Etude et de Construction de Moteurs d’Aviation (SNECMA), Moissy Cramayel, France, April 25, 1996, enrollment 25, chair.
- “Special Topics in Structural Dynamics,” six-hour short course, Enseignement de Troisième Année, Option Calcul des Structures, Ecole Centrale de Nantes, Nantes, France, November 17-27, 2000, enrollment 20, instructor.
- One-day Industry-University short course on “Blade Vibration in Axial & Centrifugal Compressors and Steam Turbines,” The Elliott Company, Jeannette, Pennsylvania, February 23, 2001, enrollment 50, instructor.
- “Vibrations,” six one-hour lectures, Ecole Centrale de Nantes, France, October 2001, enrollment 180, guest lecturer.
- “Vibrations Non-Linéaires,” eight-hour short course, Structures and Materials Department, Ecole Centrale de Nantes, France, November 2001, enrollment 10, instructor.
- “Systèmes Dynamiques Non-Linéaires,” five-hour short course, Structures and Materials Department, Ecole Centrale de Nantes, France, February 2003, enrollment 23, instructor.
- Four-hour lecture series on “Mode Localization and Normal Modes of Rotating Periodic Systems,” Kharkov Polytechnical Institute, Kharkov, Ukraine, December 13-16, 2004.

***Courses Taught at the University of Michigan***

|                            |                                                            |
|----------------------------|------------------------------------------------------------|
| Mechanical Engineering 240 | Introduction to Dynamics                                   |
| Mechanical Engineering 443 | Intermediate Dynamics                                      |
| Mechanical Engineering 441 | Intermediate Vibrations                                    |
| Mechanical Engineering 541 | Mechanical Vibrations                                      |
| Mechanical Engineering 641 | Advanced Vibrations of Structures                          |
| Mechanical Engineering 648 | Nonlinear Oscillations and Stability of Mechanical Systems |

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**ADMINISTRATIVE UNIVERSITY ACTIVITIES**

***Major Administrative Duties and Committee Assignments at McGill University***

- Dean, Faculty of Engineering, 2005-present
- Chair, University Tenure Committee for Engineering, 2005-present
- Member, University Senate, 2005-present
- Member, Senate Nominating Committee, 2005-present

- Member, Senate Committee on Physical Development, 2005-2009
- Member, Senate Committee on Technology Transfer, 2005-2006
- Member, Internal Controls Committee, 2005-2009
- Member, Internal Human Resources Committee, 2006-2010
- Member, Ad-Hoc Advisory Committee to the Vice-Principal (Administration & Finance) on the Appointment of an Associate Vice-Principal (Financial Services), 2006
- Member, Ad-Hoc Advisory Committee to the Vice-Principal (Administration & Finance) on the Appointment of an Associate Vice-Principal (Human Resources), 2006
- Chair, Office of Technology Transfer Advisory Committee, 2006
- Member, Advisory Committee for the Selection of a Vice-Principal (Inter-Institutional Relations), 2006
- Chair, Faculty of Engineering Advisory Board, 2007-present
- Member, Advisory Committee for the Selection of a Vice-Principal (Public Affairs), 2008
- Member, Advisory Committee for the Selection of a Vice-Principal (Development & Alumni Relations), 2008
- Member, Innovation Steering Committee; Chair, Working Group on Governance, Policies and Practices; Office of the Vice-Principal (Research & International Relations), 2009-2010
- Member, Advisory Committee for the Selection of a Vice-Principal (Research & International Relations), 2009-2010
- Member, Strategic Enrolment Management Advisory (SEMA), 2010-present
- Member, McGill Strategic Reframing Initiative (SRI), 2010-present: SRI Steering Committee; SRI Performance Management Group
- Member, Committee on Academic Staff Compensation, 2010-present
- Member, Advisory Committee for the Selection of a Vice-Principal (External Relations), 2011

#### ***Committee Assignments at the University of Michigan***

- Member, Applied Mechanics Graduate Committee, 1986-88
- Member, Honors and Awards Committee, 1988-89
- Member, Financial Aid and Admissions Committee, 1990-92
- Member, Mechanical Engineering Department Chairman Search Committee, 1991-92
- Member, College of Engineering Faculty Reward Committee, 1991-1992
- Member, Mechanical Engineering Department Graduate Program Committee, 1992-94
- Elected member, Mechanical Engineering Department Advisory Committee, 1992-95 & 1995-98
- Elected member, College of Engineering Curriculum Committee, 1991-94
- Member, Mechanical Engineering Department Planning Committee, 1993-95
- Chairman, Mechanical Engineering Department Graduate Program Committee, 1996-98
- Member, Mechanical Engineering Department Planning Committee, 1996-99
- Chairman, Task Force on Graduate Student Recruiting, College of Engineering, 1998-99
- Recorder, Mechanical Engineering Department Advisory Committee, 1999
- Chairman, Mechanical Engineering Department Safety Committee, 1999

- Chairman, Faculty Leadership Committee, National Science Foundation's "Alliances for Graduate Education and the Professoriate" Program, Rackham School of Graduate Studies, 1999-05
- Member, Mechanical Engineering Department Planning Committee, 2000-01
- Member, Distributed Learning Committee, Rackham School of Graduate Studies, 2001-02
- Executive Board, Rackham School of Graduate Studies, 1999-2005 (ex-officio)
- Chairman, Committee on Divisional Restructuring, Rackham Executive Board, 2001-02
- Chairman, Taskforce on Office of Admissions, Academic Records, and Dissertations, Rackham School of Graduate Studies, 2004-05

#### ***Administrative Duties at the University of Michigan***

- Program Organizer, Mechanical Sciences Division Seminar Series, 1988-90
- Program Organizer, Westinghouse Distinguished Lectureship, College of Engineering, 1990-92
- Chairman (elected), College of Engineering Curriculum Committee, 1992-94
- Chairman, Mechanical Engineering Department Faculty Search Committee, 1993-95
- Dynamics Area Coordinator, Mechanical Engineering Department, 1993-98
- Graduate Program Chair and Associate Chair, Mechanical Engineering Department, 1996-98
- Associate Chairman, Mechanical Engineering Department, 1999
- Associate Dean, Rackham School of Graduate Studies, 1999-2005
- Chairman, Mechanical Engineering Department Faculty Search Committee, 2000-01
- Faculty Tenure and Promotion Reader, Provost Office, 2000-2005

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## **PROFESSIONAL AFFILIATIONS AND ACTIVITIES**

### ***Service to Government and Professional Organizations***

- **Editorial Activities**
  - Associate Editor, *ASME Journal of Computational and Nonlinear Dynamics*, 2005-2011
  - Associate Editor, *AIAA Journal* 2000-2006
  - Associate Editor, *ASME Journal of Vibration and Acoustics*, 1992-2000
  - Member, Advisory Board, *Nonlinear Dynamics*, 1994-2008
  - Member, Editorial Advisory Board, *ASME Applied Mechanics Reviews*, 1999-present
  - Member, Editorial Board, *International Journal of Reliability and Safety*, 2005-present
  - Member, Editorial Board, *Edition Ecole Centrale de Nantes (EECN)*, 2011-present [University Press of the Ecole Centrale]
- **Professional Society Membership**
  - Fellow, The American Society of Mechanical Engineers
  - Fellow, The American Academy of Mechanics
  - Senior Member, The American Institute of Aeronautics and Astronautics (since 1986)
  - Member, The American Society for Engineering Education (since 2001)
  - Ingénieur, Ordre des Ingénieurs du Québec
- **Professional Committee Membership**
  - Member, ASME Technical Committee on Multibody Systems and Nonlinear Dynamics (January 2005-present)
  - Member, Structures and Dynamics Committee, ASME International Gas Turbine Institute

- Former Member and Friend, ASME Technical Committee on Vibration and Sound
- Member, National Executive Committee, EMERGE (Empowering Minority Engineers/Scientists to Reach for Graduate Education) Consortium, 2001-2005
- President (2007-08) and Secretary (2006-07), Comité des Doyens d'Ingénierie du Québec (CODIQ). Member of CODIQ, 2005-present
- Member, National Council of Deans of Engineering and Applied Sciences (NCDEAS), 2005-present
- Member, NCDEAS Education Committee, 2008-present
- **Conference Chairs and Scientific Committees**
  - Member, Scientific Committee, International Conference on Nonlinear Dynamics-KPI 2004, Kharkov Polytechnical Institute, Kharkov, Ukraine, September 14-16, 2004
  - Member, International Scientific Committee, Third International Symposium on Stability Control of Rotating Machinery (ISCORMA-3), Cleveland, Ohio, September 19-23, 2005
  - Member, Scientific Committee, Recent Advances in Nonlinear Mechanics-RANM 2005, Aberdeen, Scotland, August 30-September 1, 2005.
  - Co-Chairman, Second International Conference on Dynamics, Vibration and Control, Beijing, China, August 23-26, 2006.
  - Member, Scientific Committee, Conference on Topical Problems in Applied Mathematics and Mechanics, Kharkov Polytechnical Institute, Kharkov, Ukraine, October 23-26, 2006.
  - Member, International Scientific Committee, 8ième Colloque National en Calcul des Structures, Giens, France, May 21-25, 2007.
  - Co-Chairman, and member of Scientific Committee, Second International Conference on Nonlinear Dynamics, Kharkov, Ukraine, September 25-28, 2007 (in honor of Alexander M. Lyapunov).
  - Member, International Scientific Committee, 9ième Colloque National en Calcul des Structures, Giens, France, May 25-29, 2009.
  - Member, Scientific Committee, Euromech Colloquium 503 "Nonlinear Normal Modes, Dimension Reduction and Localization in Vibrating systems," September 27-October 2, 2009, Frescati, Italy.
  - Member, Scientific Committee, The Third International Conference on Dynamics, Vibration and Control, Hangzhou, China, May 12-14, 2010.
  - Co-Chairman, and member of Scientific Committee, Third International Conference on Nonlinear Dynamics, Kharkov, Ukraine, September 21-24, 2010.
  - Member, Scientific Committee, 10ième Colloque National en Calcul des Structures, Giens, France, May 9-13, 2011.
- **External Review and Advisory Board Activities**
  - External Review Team Member, Master of Science in Engineering Program in Automotive Systems Engineering, University of Michigan–Dearborn, March 2003
  - External Evaluation Team Member, Master of Science in Engineering Program in Mechanical Engineering, University of Michigan–Dearborn, February 2004
  - Chair, Scientific Orientation and Evaluation Committee, Department of Structural Dynamics and Coupled Systems, Office National d'Etudes et de Recherches Aéropatiales (ONERA), Châtillon, France, March 2004
  - Member, Global Advisory Board, Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejon, Korea, 2006-2008
  - Member, Dean's Advisory Council, College of Engineering, California Polytechnic State University, San Luis Obispo, California, 2006-2010
  - Member, Board of Directors, Consortium for Research and Innovation in Aerospace in Quebec (CRIAQ), 2006-present

- Member, Executive Committee, Consortium for Research and Innovation in Aerospace in Quebec (CRIAQ), 2006-present; Secretary of CRIAQ, 2006-2008 & 2010-2012
- Member, External Review Group, Texas A&M University at Qatar, Doha, Qatar, 2009-present.
- Member, Scientific Advisory Board (*Conseil d'Orientation Scientifique*), Carnot Institute FEMTO-Sciences & Technologies, Université de Franche-Comté, France, 2010
- **Proposal & Awards Review Activities**
  - Panelist and reviewer, National Science Foundation, Dynamic Systems and Control Program; Participation in review panels for various awards on a regular basis from 1987 to 2008.
  - Reviewer, National Science Foundation, Division of International Programs.
  - Panelist and reviewer, National Science Foundation Small Business Innovation Research Program, Phases I and II (two review panels).
  - Reviewer, Army Research Office
  - Reviewer, Engineering Foundation (ASME)
  - Reviewer, Department of Energy, Division of Engineering and Geosciences
  - Reviewer, Natural Sciences and Engineering Research Council (NSERC) of Canada
  - Member, Interdisciplinary Adjudication Committee (IAC), Canada Research Chairs, 2009-2012
  - Member, Natural Sciences and Engineering Panel, The Ontario Premier's Discovery Awards Program, 2010
  - Member, Ordre des Ingénieurs du Québec Panel, Grand Prix d'excellence, 2011
- **External Referee for Promotion and Tenure Reviews at Various Institutions**
  - Boston University
  - Catholic University of America
  - Clarkson University
  - Columbia University
  - Harvey Mudd College
  - Massachusetts Institute of Technology
  - Michigan State University
  - National Technical University, Athens, Greece
  - Ohio State University
  - Oakland University
  - Rensselaer Polytechnic Institute
  - Technion, Israel Institute of Technology
  - University of Alaska
  - University of Maryland
  - University of Southern California
  - University of Connecticut
  - University of Washington
  - Wayne State University
  - Wright State University
- **External Evaluator (Ph.D. Dissertations, Habilitation à Diriger des Recherches)**
  - Conservatoire National Des Arts et Métiers, France
  - Ecole Centrale de Nantes, France
  - Ecole Centrale de Paris, France
  - Ecole Centrale de Lyon, France
  - Ecole Nationale Supérieure des Techniques Avancées (ENSTA), France
  - Hong Kong University, Republic of China
  - Université de Franche-Comté, France
  - Université Pierre et Marie Curie – Paris VI, France

- **Journal Review Activities**

- ASME Journal of Applied Mechanics
- ASME Journal of Vibration and Acoustics
- ASME Journal of Dynamic Systems, Measurement and Control
- ASME Journal of Energy Resources Technology
- ASME Journal of Gas Turbine and Power
- Journal of Sound and Vibration
- AIAA Journal
- AIAA Journal for Propulsion and Power
- ASCE Journal of Engineering Mechanics
- Journal of Mechanical Systems and Signal Processing
- International Journal of Non-Linear Mechanics
- International Journal of Solids and Structures
- Journal of the Acoustical Society of America
- Nonlinear Dynamics
- Proceedings of the Royal Society: Mathematical and Physical Sciences
- Journal of Nonlinear Science
- Journal of Vibration and Control

- **Symposia Organized and Sessions Chaired**

- Organizer and Chairman, session “Nonlinear Dynamics,” 26th Annual Meeting of the Society of Engineering Science, Ann Arbor, Michigan, September 18-20, 1989.
- Chairman, session “Components and Systems Vibration,” 35th ASME Gas Turbine Conference, Brussels, June 11-14, 1990.
- Chairman, session “Unsteady Flow Phenomena and Forced Response of Turbomachinery,” AIAA/ASME Joint Propulsion Conference, Sacramento, California, June 24-27, 1991.
- Co-Chairman, session “Turbomachinery Dynamics,” 34th AIAA/ASME Structures, Structural Dynamics and Materials Conference, La Jolla, California, April 19-22, 1993.
- Chairman, session “Flutter and Forced Response,” 38th ASME Gas Turbine Conference, Cincinnati, Ohio, May 24-27, 1993.
- Organizer (with N. C. Perkins), symposium “Structural Dynamics of Large-Scale and Complex Systems” (three sessions), 14th ASME Vibration and Noise Conference, Albuquerque, New Mexico, September 19-22, 1993. Chairman for one session.
- Organizer (with J. P. Cusumano), symposium “Aerospace Structures: Nonlinear Dynamic and System Response” (two sessions), ASME 1993 Winter Annual Meeting, New Orleans, Louisiana, November 28-December 3, 1993. Chairman for one session.
- Chairman, session “Multibody Dynamics II,” Sixth Conference on Nonlinear Vibrations, Stability, and Dynamics of Structures, Blacksburg, Virginia, June 9-13, 1996.
- Chairman, session “Rotors,” Sixth Conference on Nonlinear Vibrations, Stability, and Dynamics of Structures, Blacksburg, Virginia, June 9-13, 1996.
- Organizer and Chairman, session “Vehicle Suspension, Track and Structure,” Critical Technologies for Modeling and Simulation of Ground Vehicles Conference, Ann Arbor, Michigan, May 29-30, 1996.
- Organizer, symposium “Mode Localization and Nonlinear Normal Modes” (two sessions), 16th ASME Biennial Conference on Mechanical Vibration and Noise, Sacramento, California, September 1997; Chairman for one session and vice-chairman for the other.
- Chairman, symposium “Dynamics, Acoustics and Simulations: Application, Modeling and Simulation—II,” ASME 1998 International Mechanical Engineering Congress and Exposition, Anaheim, California, November 1998.
- Chairman, session “Nonlinear Vibrations and Perturbation Methods,” Ali Nayfeh Symposium, 1999 ASME Mechanics and Materials Conference, Blacksburg, Virginia, June 27-30, 1999.

- Organizer (with S. W. Shaw), two-session symposium “Nonlinear Modes and Localization in Coupled Dynamical Systems,” 17th ASME Biennial Conference on Mechanical Vibration and Noise, Las Vegas, Nevada, September 12-15, 1999. Chairman for one session.
- Chairman, session “Dynamics and Identification,” Symposium on “Nonlinear Response of Hysteretic Oscillators,” 17th ASME Biennial Conference on Mechanical Vibration and Noise, Las Vegas, Nevada, September 12-15, 1999.
- Chairman and organizer, session “Recruitment of Minorities to the Professorate,” National Science Foundation Minority Graduate Education/EMERGE Workshops, Atlanta, Georgia, February 24-25, 2000.
- Organizer (with M.P. Mignolet), three-session symposium “Natural and Forced Vibrations of Bladed Disk Assemblies,” ASME Turbo Expo 2000, Munich, Germany, May 2000. Chairman for one session and vice-chair for two sessions.
- Organizer (with S. W. Shaw), symposium “Nonlinear Modal Analysis,” 18th Biennial Conference on Mechanical Vibration and Noise, Pittsburgh, Pennsylvania, September 9-12, 2001. Chairman for one session.
- Chairman, session “Rotor Dynamics,” Ninth International Symposium on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC-9), Honolulu, Hawaii, February 10-14, 2002.
- Chairman, session “Recent Progress in NVH Analysis,” Ninth Annual Automotive Research Center (ARC) Conference on Modeling and Simulation of Ground Vehicles, Auburn Hills, Michigan, May 12-13, 2003.
- Chairman, session “Milieux Granulaires,” Sixième Colloque National en Calcul des Structures, Giens, France, May 20-23, 2003.
- Chairman, session “Nonlinear Dynamics for Design;” Bifurcations: The Use and Control of Chaos; Southampton, United Kingdom, 28-30 July 2003.
- Chairman, session “System Identification and Reduced Order Modeling with Applications to Linear and Nonlinear Systems: System Identification,” 19th Biennial Conference on Mechanical Vibration and Noise, Chicago, Illinois, September 2-6, 2003.
- Chairman, session “Vibrations II,” Tenth International Symposium on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC-10), Honolulu, Hawaii, March 7-11, 2004.
- Chairman, session “Recent Progress in NVH Analysis,” Tenth Annual Automotive Research Center (ARC) Conference on Modeling and Simulation of Ground Vehicles, Ann Arbor, Michigan, May 18-19, 2004.
- Chairman, plenary session “Vibro-Acoustique,” 14ème Colloque Vibrations, Chocs et Bruit, Lyon, France, June 16-18 2004.
- Chairman, General Session, International Conference on Nonlinear Dynamics-KPI 2004, Kharkov Polytechnical Institute, Kharkov, Ukraine, September 14-16, 2004
- Chairman, session “Identification,” Noise and Vibration: Emerging Methods (NOVEM 2005), Saint-Raphaël, France, April 18-21, 2005.
- Organizer (with M. P. Castanier), symposium “Vibration of Complex Structures,” 20th Biennial Conference on Mechanical Vibration and Noise, Long Beach, California, September 2005. Chairman and co-chairman for two sessions.
- Co-Chairman, Plenary Session, The Second International Conference on Dynamics, Vibration and Control, Beijing, China, August 23-26, 2006.
- Co-Chairman, session “Modeling, Vibration and Control of Rotor Systems,” 20th Biennial Conference on Mechanical Vibration and Noise, Las Vegas, Nevada, September 4-7, 2007.
- Co-Chairman, General Session, Second International Conference on Nonlinear Dynamics, Kharkov, Ukraine, September 25-28, 2007.
- Organizer (with M. Legrand and D. Laxalde), symposium “Nonlinear Mechanisms in Bladed Disk Assemblies” (two sessions), 22nd Biennial Conference on Mechanical Vibration and Noise, San Diego, California, September 2009.

- Chairman, General Session, Third International Conference on Nonlinear Dynamics, Kharkov, Ukraine, September 21-24, 2010.

***Consulting:***

- General Motors Research Laboratories, Engineering Mechanics Department, Warren, Michigan.
- Institute for Computational Mechanics in Propulsion (ICOMP), NASA Lewis Research Center, Cleveland, Ohio.
- Johnson Controls, Inc., Automotive Systems Group, Plymouth, Michigan.
- Société Nationale d'Etude et de Construction de Moteurs d'Aviation (SNECMA), Moissy Cramayel, France.
- Williams International, Walled Lake, Michigan.
- General Electric Aircraft Engines, Cincinnati, Ohio.
- Elliott Turbomachinery Company, Jeannette, Pennsylvania.
- MKP Structural Design Associates, Inc., Ann Arbor, Michigan

***Technology Transfer:***

- Software Invention Disclosures, “REDUCE: A Computer Program for Developing a Reduced-Order Model and Predicting the Vibratory Response of Mistuned Bladed Disk Assemblies,” C. Pierre and M. P. Castanier, Office of Technology Transfer, The University of Michigan, April 2002; and TURBO-REDUCE, February 2003.
- “Programmable Multi-Channel Amplitude and Phase Shifting Circuit,” United States Patent No. US 7,728,576 B1, June 1, 2010 (K. W. Jones, C. Pierre, S. L. Ceccio, J. Judge, and S. Fuchs)

***Spin-off Business: MKP Structural Design Associates, Inc., Ann Arbor, Michigan***

- Incorporated since September 2001
- Founder (with Z.-D. Ma and N. Kikuchi) and Technical Advisor