

Resume of André PREUMONT

Name: André J. PREUMONT

Birthdate: February 18, 1951

Nationality: Belgian

Married to Yvette LECHARLIER since 1973, two children

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Current position: Professor of Mechanical Engineering and Robotics (Professeur Ordinaire, 1992)

Director of the Active Structures Laboratory, Université Libre de Bruxelles (ULB)

Also Part-time Professor (Chargé de cours) at the University of Liège (LTAS)

Education:

M.Sc. Ingénieur Civil des Constructions Aéronautiques (aeronautics) (University of Liège 1973)

Ph.D. Docteur en Sciences Appliquées (University of Liège ,1981) Dissertation: "Analyse Sismique du Coeur d'un Réacteur Nucléaire PWR". (Supervisor Prof. M.Geradin)

Previous Positions:

1974/1975: Design Engineer at Coppee-Rust Engineering,

1976/1985: Consultant for Belgonucleaire,

1985/1986: Visiting Professor, Aerospace and Ocean Engineering Department of Virginia Polytechnic Institute and State University, USA.

1986/1987: Consultant for Belgonucléaire and Part-time Lecturer at the University of Liège,

1987/1992: Associate Professor (Chargé de cours) at ULB

1999/2005: Scientific Adviser at MICROMEGA Dynamics S.A. (Angleur, Liège)

2005/2006: Visiting Professor, UTC Compiègne (France), Laboratoire Roberval.

2007: Visiting Professor, INSA de Lyon (France), Laboratoire de Mécanique des Contacts et des Structures (LaMCoS)

2008/2009: Chercheur Associé CNRS, INSA de Lyon (France), LaMCoS

2011/2012: von Humboldt Research Awardee, Technical University of Darmstadt and Fraunhofer LBF (Germany).

2014: Visiting Professor, Politecnico di Milano (Italy), Dept of Mechanical Engineering.

Comment: I worked for 12 years in nuclear industry where I did my PhD; then I stayed for a year as visiting professor in an American university, working on space-related projects. I never considered staying in the USA, but I enjoyed the academic life and, when I returned to Belgium, I applied for a chair at ULB; I was appointed in 1987 and I started from scratch to build what has become the *Active Structures Laboratory*. I never applied for another position. We created the spin-off company *Micromega Dynamics* in 1999 and I stayed as scientific adviser for 5 years, before leaving the company, which is running well and independently. After that, I have had several part-time visiting positions in France Germany and Italy.

Scientific prizes and honours:

1981 AILg Prize for his Ph.D. Dissertation. (University of Liege Alumni)

1983 International *Vinçotte* Prize for "his contribution to the seismic analysis of Nuclear Power Plants"

1987 *Louis BAES* Prize from the Belgian Academy for his work in Random Vibration.

2000 Five-year FNRS Scientific Prize in Applied Exact Sciences (1996-2000) (*Dr A.DeLeeuw-Damry-Bourlart* Prize) "for his fundamental scientific contribution and numerous industrial applications in modelling and active control of complex mechanical structures"

2006 *Médaille d'Or Gustave Trasenster* de l'AILg (University of Liege Alumni).

2008 Foreign Member of the Lithuanian Academy of Sciences

2009 Member of the "Académie Royale de Belgique" Classe « Technologie et Société »

- 2011 Alexander von Humboldt Research Award (F.R.Germany, U. Darmstadt)
- 2012 *Texty Award* from the Text and Academic Authors Association (TAA) for the book "Vibration Control of Active Structures, An Introduction" (3rd Edition)
- 2013 *Fellow* of the American Institute of Aeronautics and Astronautics.

Books (single author):

1. *Vibrations Aléatoires et Analyse Spectrale*, Presses Polytechniques Romandes, Lausanne, Suisse, 1990 (translated in English)
2. *Random Vibrations and Spectral Analysis*, Kluwer 1994
3. *Vibration Control of Active Structures, An Introduction*, Kluwer 1997, 2nd Edition in 2002, 3rd Edition, Springer in 2011. (*Texty Award* from TAA, 2012).
4. *Mechatronics: Dynamics of Electromechanical and Piezoelectric Systems*, Springer 2006.
5. *Twelve Lectures in Structural Dynamics*, (Springer, 2013)

Book (co-author):

6. *Active Control of Structures* (A.Preumont, K.Seto), Wiley, 2008

Book (as Editor):

7. *Responsive Systems for Active Vibration Control*, Kluwer, NATO Science Series, Vol.85, 2002.

Articles in peer-reviewed journals: 85.

Fields of expertise and Scientific Interests:

- Structural Dynamics (Nuclear and Aerospace structures)
- Random Vibration (Earthquake Engineering, Acoustic Fatigue)
- Robotics (Mobile robots, Haptic control, flapping wing UAV)
- Structural Control, Active Isolation and Damping of Large Space Structures
- SMART (multifunctional) materials
- Active control of cable structures
- Vibration isolation and damping in precision structures and telescopes
- Active Optics of Extremely Large Telescopes
- Adaptive Optics (with segmented piezoelectric bimorph mirrors)

PhD supervision: 17 PhD dissertations.

1. Paul Alexandre: Contrôle hiérarchisé d'un robot marcheur hexapode (Jan. 1997)
2. Younes Achkire: Active tendon control of cable-stayed bridges (June 1997)
3. Nicolas Loix : Amortissement actif des structures flexibles (September 1998)
4. Xavier Pitoiset : Méthodes spectrales pour une analyse en fatigue des structures métalliques sous chargements aléatoires multiaxiaux (March 2001)
5. Vincent Piefort : Finite element modelling of piezoelectric active structures (June 2001)
6. Frederic Bossens: Amortissement Actif des structures câblées : de la théorie à l'implémentation (Octobre 2001)
7. Ahmed Abu Hanieh : Active isolation and damping via Stewart platform (April 2003)
8. Pierre De Man: Contrôle actif du rayonnement acoustique des plaques : une approche à faible autorité (Juin 2004)
9. Abhijit Ganguli : Chatter Reduction through Active Vibration Damping (Nov. 2005)
10. Christophe Collette: Usure Ondulatoire en Transport Ferrovière: Mécanismes et Réduction (Juillet 2007)
11. Bruno de Marneffe: Active and Passive Vibration Isolation and Damping via Shunted Transducers (December 2007).
12. More Avraam: MR fluid brake design and its application to a portable muscular rehabilitation device (November 2009).
13. Gonçalo Rodrigues: Adaptive optics with segmented deformable bimorph mirrors (February 2010).

14. Renaud Bastaits: Extremely Large Segmented Mirrors: Dynamics, Control and Scale Effects. (June 2010)
15. Pierre Letier: Bras Exosquelette Haptique: Conception et Contrôle. (July 2010)
16. Matej Karasek: Robotic hummingbird: Design of a control mechanism for a hovering flapping micro air vehicle. (November 2014)
17. Bilal Mokrani: Piezoelectric shunt damping of rotationally periodic structures. (January 2015)

The research group:

The name “Active Structures Laboratory” is intended to give more visibility to the “Service des Constructions Mécaniques et Robotique”. The team consists of one professor, one assistant, and a number of researchers (5 to 10, doctoral students, post-docs, foreign visitors) depending on the research contracts obtained by the group.

Over the years, the group has acquired an international reputation in the field of active vibration control (damping and isolation), intelligent structures and “smart materials” (e.g. piezoelectric) with applications to various fields of engineering such as large space structures, large telescopes and deformable mirrors. In parallel to this, the group conducts other research activities in various fields of robotics and mechatronics, depending on research contract opportunities (during the '90s we built several walking machines; between 2005 and 2009, a haptic exoskeleton arm with 7 degrees of freedom was developed on behalf of the European Space Agency, ESA).

Strategic vision:

We believe that a small group must work in a “niche” which is compatible with the size of the group. The activities must combine theoretical studies, numerical analysis and experiments. The laboratory should be focused and well equipped. We favor working in networks with other research groups having complementary activities, rather than widening the scope of our own activity. Our work in functional materials being strongly multidisciplinary, we team with partners specialized in material science (e.g. Fraunhofer Institutes in Germany). Similarly, in our work in active optics and telescopes, we team with ESO or with other groups specialized in optical metrology (e.g. Centre Spatial de Liège).

We believe that university groups working in engineering should focus on problems which are 5 to 20 years from applications. For the next five years, we have selected three research lines:

1. The future lightweight membrane space telescopes (on behalf of ESA).
2. Vibration alleviation of extreme precision structures (collaboration with ESO, CERN).
3. Control of the hovering flight of a flapping wing UAV (robotics).

Industrial innovation

We created the spin-off company *Micromega Dynamics* in 1999 and I stayed as scientific adviser for 5 years, before leaving the company, which is running well and independently (employing 10 people).

Bibliometry: see Google Scholar

Other international involvement in recent years:

- Fellow AIAA, Member of IEEE and ASME.
- Member of the Advisory Panel for Scientific Research of the University of Trento (Italy) (2001-2004).
- Senior Editor of “Mathematics and Computers in Simulation” (Elsevier, 2005-2013) (formerly Co-Editor-in-Chief, 2002-2005).
- Member of the Scientific Committee of the Nuclear Energy Division of the CEA (Commissariat à l’Energie Atomique, France) (2002-2007).
- Member of the Editorial Board of “Journal of Systems and Control Engineering” (Proc. Of the Institution of Mechanical Engineers Part I) (2004-2014).
- CISM – Udine (Italy): Director of the course: “Semi-active Vibration Suppression, The Best from Active and Passive Technologies”, October 2007.

- FCT (Portugal) Chairman of the evaluation panel in mechanical Engineering (2007, 2009, 2010, 2014)
- Member of the Advisory Board of “*Acta Mechanica* “(Springer) (Since 2011)
- Member of the Audit committee for the TNO (National Research Labs, The Netherlands) technology position in Mechatronics, Mechanics & Materials (2012)
- Member of the Engineering and Technological Sciences (ENGITECH) Scientific Committee of Science Europe (Since 2012)

Funding: Research contracts over the past 5 years (and ULB share of the funding):

- 2014: Region Wallonne - FN-Herstal: M-4, MT_Mitrailleuse Mécatronique Multicalibre M4 (ULB share: 598.000€)
- 2013: IRSIB-Brussels Region (BB2B Ch. Collette): Active stabilization, shape control and vibration alleviation in extremely large precision structures (extension) (277.948 €)
- 2013: Eurocopter-INSA de Lyon: Active damping in helicopter (COROS) (14.500€).
- 2011: ESA-ESTEC: BIALOM, Bimorph Adaptive Large Optical Mirror Demonstrator (with CSL). (ULB share: 570.000€)
- 2011: IRSIB-Brussels Region (BB2B I. Surdej) Modular and Scalable Adaptive Optics (103.200€).
- 2011: AREVA: Seismic analysis toolbox (30.000€).
- 2011: Region Wallonne: Déflectométrie tridimensionnelle résolue en temps (DETROIT) (304.750 €).
- 2010: FNRS: Miroir segmenté pour optique adaptative (26.700 €)
- 2010: IRSIB-Brussels Region (BB2B Ch. Collette): Active stabilization, shape control and vibration alleviation in extremely large precision structures (331.729 €)
- 2009: HENRI TUDOR Luxemburg (for ESA): Extended piezoelectric strain rosette for structural health monitoring (19.740 €).
- 2009: FNRS: Système modulaire de miroirs bimorphes pour l’optique adaptative (30.000€).
- 2009: ESA-ESTEC: LDT: Large Deployable Telescopes (with CSL and Tech. Univ. Munich) (60.000€).

Earlier research contracts

- 2008: Region Wallonne Techspace-Aero (First Postdoc Ch. Collette): Amortissement et isolation des structures aérospatiales embarquées (150.939 €).
- 2008: ESO (European Southern Observatory) : Reduction of vibration introduced on the VLT by the use of closed Cycle Cooler. (136.930 €).
- 2008: Region Wallonne (SKYWIN) : HM+. L’avion plus intelligent : Health monitoring et maintenance prédictive (542.000 €).
- 2007: FNRS: Détection de l’endommagement dans les structures de génie civil à partir de mesures vibratoires (mesure de déformation par fibres Bragg) (25.000 €).
- 2007: EU- Marie Curie Research Training Networks: “A Computer Aided Engineering Approach to Smart Structures Design” (Coordinator KULeuven) (226.580 €).
- 2007: FRIA (Renaud Bastaits’ fellowship): Contrôle actif d’un miroir déformable à l’aide d’un réseau d’actionneurs de Type bimorphe.
- 2007 : ESA-PRODEX : « Zero-gravity testing of a six-axis vibration isolator and innovative sensing for low frequency vibrations » (Stewart platform 2)
- 2006: Région Wallonne: FIRST Spin-Off (More Avraam): MR-Tech: Technologie des Fluides Magnéto Rhéologiques: Applications Mécatroniques.
- 2006 : FNRS-FRFC : Contrôle de forme de réflecteurs membranaires en vue de réaliser un télescope spatial (collaboration CSL-ULg).
- 2006: ESF-Eurocores: Shape Control of Membrane Reflectors (SCMeRe): ULB (coordinator), Univ. Cambridge, ULg-CSL, Univ. de Nantes.
- 2006: FNRS-FRFC: Smart sensing for Structural Health Monitoring (S3HM)
- 2005: RATP: Modélisation multi-corps du système véhicule voie sur le réseau RER.
- 2005: FW6-STREP: CASSEM: Composites and adaptive structures: simulation, experiment and modelling (FP6-2003-NMP-TI3/G3, coordinator Centre Tudor, Luxembourg)
- 2005: ESA-GSTP: EXOSTATION: Haptic control of an exoskeleton as man-machine interface for space robotics (Subcontract for SAS)

- 2004: ESA-PRODEX: “A novel design of Stewart platform for active vibration isolation”
Parabolic flight test in October 2004.
- 2004: FW6 – InMAR: Intelligent Materials for Active Noise Reduction (coordinated by Fraunhofer LBF, Darmstadt)
- 2003: SSTC – Mandat de retour Arnaud Deraemaeker: Spatial filters for health monitoring, active control and vibroacoustic applications.
- 2003: ESA – ESTEC: *SMART* structures for payload and antenna (SSPA) (Collaboration with MICROMEGA, SAMTECH & VERHAERT in the GSTP program)
- 2003: ESA –ESTEC: Low stiffness 6 dof payload/disturbance isolator with steering capability (LSSP). (Collaboration with MICROMEGA in the GSTP program).
- 2002: FNRS: Haptic interface for a nanomanipulator
- 2002: EU-GROWTH: LAVINYA Thematic Network on Laser Vibrometry (systems and applications).
Coordinator University of Ancona (G6Rt-CT-2002-05093).
- 2002: ESA-PRODEX: Parabolic flight test of a vibration isolator based on a Stewart platform.
- 2002: EC-FW5: CORRUGATION Wheel-Rail corrugation in urban transport
(G3RD-CT-2002-00807) (research project, D2S International coordinator)
- 2002: SSTC: Inter University Attraction Pole IUAP5: Advanced Mechatronic Systems
(Collaboration K.U.Leuven, U.C.Louvain)
- 2001: EC-GROWTH: SMARTTOOLS: Smart Devices for Machine Tools
(G1RD-CT-2001-00551) (research project, SORALUCE project leader)
- 2001: EC-GROWTH: SAMCO: Structural Assessment, Monitoring and Control
Thematic Network (CTG2-2000-33069) (VCE project leader)
- 2001: FNRS: Atomic force microscope and nano-manipulation
- 2001: NATO: Advanced Study Institute: Responsive systems for active vibration control
(course held in Brussels in September 2001)
- 2000: ESA (ARCOP program) Amplified active tendon design for damping space trusses
(collaboration with Micromega & CEDRAT)
- 2000: Région Wallonne : SAAB Active noise control of windows
- 2000: Région Wallonne : Interaction between the dynamics and control of non-linear mechanisms.
- 2000: INRS : Design of a semi-active suspension for the cabin of fork lift trucks.
(collaboration with Micromega)
- 2000: FNRS : Active isolation based on a Stewart platform
- 2000: EEC/FW5 Consistent Semiactive System Control (CaSCo)
(Collaboration with Vienna Consulting Engineers, Mannesmann Rexroth, Univ. Vienna, JRC
Ispira, Austrian Railways, Micromega)
- 1999 : Région Wallonne, First Europe (F.Bossens) : Semi-active damping of vibration
- 1999 : Région Wallonne-Micromega, Doctorat en entreprise (E.Mignon) : High precision mechanisms
based on magnetic suspension
- 1999: FNRS : Sound radiation sensing and feedback control of a baffled plate
- 1999: ALENIA SPAZIO: Finite element evaluation of fatigue damage of multidimensional random
stress fields
- 1999:SEP-SNECMA : Finite element evaluation of fatigue damage of multidimensional random stress
fields
- 1999: Research in Brussels : Semi-active suspension of underground railways vehicle. (O.Vaculin)
- 1998: FNRS : Active control of sound radiation from a vibrating plate
- 1998: ESA/ESTEC Academic TRP: Multiaxial Fatigue Under Random Loading
- 1998: EEC-TMR: Multiaxial fatigue life prediction of metallic structures submitted to
random vibrations (Marie Curie Fellowship, X.Pitoiset)
- 1998: ESA/ESTEC Microdynamics Active Control Systems (collaboration with MATRA MARCONI
SPACE and DORNIER)
- 1997: Région Wallonne-Glacieries Saint Roch: Acoustic windows (convention 3512)
- 1997: Région Wallonne: Finite element modelling of composite piezoelectric shells
(Collaboration with the University of Liege) (convention 9713549)

- 1997: EEC-BRITE/EURAM-BE96-3334: Active Control in civil Engineering (ACE) (Collaboration BOUYGUES, Mannesmann-Rexroth, DRA, MTS, Johs.Holt A.S., VSL, JRC Ispra, TU Dresden, Ecole Centrale Lyon)
- 1997: Ministry of Defence: Robotized Humanitarian Demining (Collaboration with the Royal Military Academy - ERM)
- 1997: SSTC: Inter University Attraction Pole IUAP4/24: Intelligent Mechatronic Systems (Collaboration K.U.Leuven, U.C.Louvain, U.Liège)
- 1996: FNRS: Flutter control of cable-stayed bridges
- 1996: SEP: Finite element fatigue damage evaluation under multidimensional random fields
- 1996: Région Wallonne: FIRST 3363: Active vibroacoustic control (noise isolation) (Collaboration Glaceries Saint Roch)
- 1995: European Union-Région Wallonne: EUCLID/RTP 9.2 (No 3183): Synthetic Aperture Telescopes (stabilization, pointing, delay line). (subcontract from SPACEBEL).
- 1995: Région Wallonne: Finite element modelling of piezoelectric structures (No 2792)
- 1995: FNRS: Active isolation of vibration sources in flexible structures
- 1995: Région Wallonne: FIRST-2272 (Extension) Active Suppression of Microvibration with Hybrid Controller (Feedback + Feedforward) (Collaboration SPACEBEL Instrumentation).
- 1994: ESA / ESTEC *Microgravity Payload Disturbance Study Extension Phase I* (subcontract from DORNIER)
- 1994: ESA / ESTEC In-Orbit experiment *CFIE (Control Flexibility Interaction Experiment)* phase II (prime contractor : SPACEBEL)
- 1994: ULB / Action de Recherche Concertée : *Active Control of Structures and Walking Robots*
- 1993: FNRS : Active damping of cable stayed bridges
- 1993: CEE / TELEMAN 44 Kinematic Study of *ROBUG III* (walking machine) (subcontract from University of Portsmouth)
- 1993 ESA / ESTEC In-Orbit experiment *CFIE (Control Flexibility Interaction Experiment)* phase I (Laboratory demonstration model) (prime contractor : SPACEBEL)
- 1993: Région Wallonne : FIRST-2272 : Active Damping of an Optical Test Bench (Collab. SPACEBEL)
- 1993: ESA / ESTEC : *Damping and non-linear Structures* (subcontract from DORNIER)
- 1992: WESTINGHOUSE Energy System : Artificial generation of earthquake records

PUBLICATIONS

A) Books

1. A.PREUMONT, *Vibrations Aléatoires et Analyse Spectrale*, Presses Polytechniques Romandes, Lausanne, Suisse, 1990
2. A.PREUMONT, *Random Vibrations and Spectral Analysis*, Kluwer 1994
3. A.PREUMONT, *Vibration Control of Active Structures, An Introduction*, Kluwer 1997, second edition in 2002, third edition (Springer) in 2011
4. A.PREUMONT, *Mechatronics: Dynamics of Electromechanical and Piezoelectric Systems*, Springer 2006
5. A.PREUMONT, K.SETO, *Active Control of Structures*, Wiley, 2008
6. A.PREUMONT, *Twelve Lectures in Structural Dynamics*, Springer 2013

As Editor:

7. A.PREUMONT, *Responsive Systems for Active Vibration Control*, Kluwer, NATO Science Series, Vol.85, 2002.

B) Articles in Journals and book chapters

85. M. KARÁSEK, A. HUA, Y. NAN, M. LALAMI, & A. PREUMONT, Pitch and roll control mechanism for a hovering flapping wing UAV, *International Journal of Micro Air Vehicles*, Volume 6, Number 4, 253-264, Dec. 2014.
84. R.BASTAITS, D. ALALUF, M. HORODINCA, I. ROMANESCU, I. BURDA, G. MARTIC, G. RODRIGUES & A. PREUMONT, Segmented bimorph mirrors for adaptive optics: segment design and experiment, *Applied Optics*, Vol.53, No 29, 6635-6642, October 2014.
83. R.BASTAITS, D. ALALUF, E. BELLONI, G. RODRIGUES & A. PREUMONT, Segmented bimorph mirrors for adaptive optics: morphing strategy, *Applied Optics*, Vol.53, No 22, 4825-4832, August 2014.
82. A. PREUMONT, B. MOKRANI, Electromagnetic and Piezoelectric Transducers, CISM Course 418 on *Active and Passive Control of Structures*, P. Hagedorn & G. Spelsberg-Korspeter Eds, Springer, 2014
81. A. PREUMONT, D. ALALUF & R. BASTAITS, Hybrid Mass Damper: A Tutorial Example, CISM Course 418 on *Active and Passive Control of Structures*, P. Hagedorn & G. Spelsberg-Korspeter Eds, Springer, 2014
80. M. KARÁSEK, Y. NAN, I. ROMANESCU, & A. PREUMONT, Pitch Moment Generation and Measurement in a Robotic Hummingbird, *International Journal of Micro Air Vehicles*, Volume 5, Number 4, 299-309, 2013.
79. B. MOKRANI, G. RODRIGUES, I. BURDA, R. BASTAITS & A. PREUMONT Synchronized switch damping on inductor and negative capacitance, *Journal of Intelligent Material Systems and Structures* 23(18) 2065–2075, 2012.

78. M. KARÁSEK & A. PREUMONT Flapping Flight Stability in Hover: A Comparison of Various Aerodynamic Models, *International Journal of Micro Air Vehicles*, Volume 4, Number 3, 203-227, September 2012.
77. R.BASTAITS, G.RODRIGUES, PH.JETTEUR, P.HAGEDORN & A.PREUMONT Multi-layer adaptive thin shells for future space telescopes, *Smart Mater. Struct.* 21 (2012) 064004
76. A. PREUMONT, R. BASTAITS, I. SURDEJ & C. COLLETTE, Challenges in precision and vibration control for physics experiments, *Journal of Systems and Control Engineering*, 226(7) 864–866, 2012.
75. P. LETIER & A. PREUMONT, Portable Haptic Arm Exoskeleton, Chapter 5 of *Prototyping of Robotic Systems: Applications of Design and Implementation*, Tarek Sobh & Xingguo Xiong, Editors. pp.122-145, Information Science Reference, IGI Global, 2012.
74. M. SMRZ, R. BASTAITS & A. PREUMONT, Active Damping of the Camera Support Mast of a Cherenkov Gamma Ray Telescope, *Nuclear Instruments and Methods in Physics Research, A* 635 (2011) 44-52.
73. G. RODRIGUES, R. BASTAITS & A. PREUMONT, Morphing of Segmented Bimorph Mirrors, *Int. J. of Optomechatronics*, 4: 217-236, 2010.
72. C. COLLETTE & A. PREUMONT, High frequency energy transfer in semi-active suspension, *Journal of Sound and Vibration*, **329**: 4604–4616, 2010.
71. R. BASTAITS & A.PREUMONT, On the Structural Response of Extremely Large Telescopes, *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 33, No. 5, 1357-1367, September-October 2010.
70. M. AVRAAM, M. HORODINCA, I. ROMANESCU and A. PREUMONT. Computer controlled rotational MR-brake for wrist rehabilitation device. *Journal of Intelligent Material Systems and Structures*, vol.21, No 15, 1543-1557, October 2010.
69. R. BASTAITS, G. RODRIGUES, B. MOKRANI & A. PREUMONT, Active Optics of Large Segmented Mirrors : Dynamics and Control, *AIAA Journal of Guidance, Control, and Dynamics*, Vol.32, No 6, 1795-1803, Nov.-Dec. 2009.
68. A.PREUMONT, R. BASTAITS & G. RODRIGUES, Scale Effects in Active Optics of Large Segmented Mirrors, *Mechatronics*, **19**, 1286-1293, 2009.
67. G. RODRIGUES, R. BASTAITS, S. ROOSE, Y. STOCKMAN, S. GEBHARDT, A. SCHOENECKER, P.VILLON & A. PREUMONT, Modular bimorph mirrors for adaptive optics, *Optical Engineering* 38(3) 034001, March 2009.
66. B. de MARNEFFE & A. PREUMONT, Active Truss Structures, Ch. 26 of *Smart Materials*, (M. SCHWARTZ, Editor), CRC Press, 2009.
65. B. de MARNEFFE, M. AVRAAM, A. DERAEMAERKER, M. HORODINCA, A. PREUMONT, Vibration Isolation of Precision Payloads: A Six-axis Electromagnetic Relaxation Isolator, *AIAA Journal of Guidance, Control, and Dynamics*, Vol.32, No 2, 395-401, March-April 2009.
64. A. DERAEMAERKER, H. NASSER, A. BENJEDDOU & A. PREUMONT, Mixing Rules for Piezoelectric Properties of Macro Fiber Composites, *J. of Intelligent Material Systems and Structures*, Vol.20, 1475-1482, August 2009.

63. A.PREUMONT, B. de MARNEFFE, A.DERAEMAERKER, F.BOSSENS, The damping of a truss structure with a piezoelectric transducer, *Computer & Structures*, 86, No 3-5, February 2008, pp.227-239.
62. A. PREUMONT, B. de MARNEFFE, S. KRENK, Transmission Zeros in Structural Control with Collocated MIMO Pairs, *AIAA Journal of Guidance, Control and Dynamics*, Vol.31, No 2, 428-431, March-April 2008.
61. B. de MARNEFFE & A. PREUMONT, Vibration Damping with Negative Capacitance Shunt, Theory and Experiment, *Smart Materials and Structures* 17, 035015, 2008
60. A.PREUMONT, M.HORODINCA, I.ROMANESCU, B.de MARNEFFE, M.AVRAAM, A.DERAEMAERKER, F.BOSSENS & A.ABU HANIEH, A six-axis single stage active vibration isolator based on Stewart platform, *Journal of Sound and Vibration*, **300** : 644–661, 2007.
59. A. GANGULI, A. DERAEMAERKER & A. PREUMONT, Regenerative chatter reduction by active damping control, *Journal of Sound and Vibration*, **300** : 847–862, 2007.
58. A.DERAEMAERKER and A.PREUMONT, Vibration based damage detection using large array sensors and spatial filters, *Mechanical Systems and Signal Processing*, 20, 1615-1630, 2006.
57. A.GANGULI, A.DERAEMAERKER, I.ROMANESCU, M.HORODINCA & A.PREUMONT, Simulation and Active Control of Chatter in Milling via a Mechatronic Simulator, *Journal of Vibration and Control*, Vol.12, No 8, 817-848, August 2006.
56. P.DE MAN, P.LEMERLE, P.MISTROT, J-Ph.VERSCHUEREN & A.PREUMONT, An investigation of a semi-active suspension for a fork lift truck, *Vehicle Systems Dynamics*, Vol.43, No 2, 107-119, February 2005.
55. A.PREUMONT, A.FRANCOIS, P.DE MAN, N.LOIX and K.HENRIOULLE, Distributed sensors with piezoelectric films in design of spatial filters for structural control, *Journal of Sound and Vibration*, Vol.282, No 3-5, pp.701-712, April 2005.
54. A.GANGULI, A.DERAEMAERKER, M.HORODINCA and A.PREUMONT, Active damping of chatter in machine tools – demonstration with a “hardware-in-the-loop” simulator, *Proc. IMechE, Part I: J. Systems and Control Engineering*, Vol.219, 359-369, August 2005.
53. A.PREUMONT, A.FRANCOIS, P.DE MAN & V.PIEFORT, Spatial filters in structural control, *Journal of Sound and Vibration*, 265, pp.61-79, 2003.
52. A.PREUMONT, F.BOSSENS & N.LOIX, Active damping of large trusses, Chapter 11 (pp.181-195) of *The Mechanical Systems Design Handbook*, O.D.I.NWOKAH & Y.HURMUZLU Edts, CRC Press, 2002.
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