

**JEAN LEMAIRE**  
CURRICULUM VITAE

**EDUCATION**

BS, Applied Mathematics, 1969, *Summa Cum Laude*, Université Libre de Bruxelles (U.L.B.)  
Teaching Certificate, 1969, *Summa Cum Laude*, U.L.B.  
MS, Actuarial Science, 1972, *Summa Cum Laude*, U.L.B.  
Operations Research Certificate, 1972, U.L.B.  
Ph.D., Mathematics, 1973, *Summa Cum Laude*, U.L.B.  
Associate, Society of Actuaries, 1997

**EMPLOYMENT**

1969-1973: Assistant, Statistics and Operations Research, U.L.B.  
1973-1976: Associate Professor, U. Nationale du Zaire, Kinshasa.  
1976-1978: Head Assistant, Statistics and Operations Research, U.L.B.  
1980-1983: Associate Professor of Statistics and Actuarial Science, U.L.B.  
1983-1987: General Manager and Chief Actuary, P.S. Insurance Company.  
1987- Professor of Insurance and Actuarial Science, Wharton School. Julian Aresty Professor (2005), Harry J. Loman Professor (2007).

**PRIZES AND AWARDS**

1979: First Prize, Belgian National Fund for Scientific Research Mathematics Competition. "Pour une réforme de l'assurance automobile en Belgique."  
1980: First Prize, Boleslaw Monic International Reinsurance Competition (with J.M. Reinhard and Ph. Vincke). "A New Approach to Reinsurance: Multicriteria Analysis."  
1986: Ernst Meyer Prize of the Geneva Association.  
Book-of-the-Year: "Automobile Insurance: Actuarial Models."  
1987: Clarence Arthur Kulp Memorial Award, American Risk and Insurance Association.  
Book-of-the-Year: "Automobile Insurance: Actuarial Models."  
1988: International INA-Lincei Prize, Italian Academy of Sciences  
1997: Clarence Arthur Kulp Memorial Award, American Risk and Insurance Association.  
Book-of-the-Year: "Bonus-Malus Systems in Automobile Insurance."  
2000: Robert Witt Research Award, Best Feature Article in the J. of Risk and Insurance (with K. Subramanian, K. Armstrong, J. Hershey, M. Pauly, D. Asch).

## **HONORARY DESIGNATIONS**

1986: Honorary Member, French Association of Actuaries  
1987: Honorary Member, Swiss Association of Actuaries  
1989: Honorary Member, Italian Association of Actuaries  
2001: Honorary Fellow, British Institute of Actuaries  
2008: Lifetime Honorary Chairman, ASTIN

## **TEACHING AWARDS**

Wharton Undergraduate Excellence in Teaching Award: 2004, 2006, 2007, 2008, 2011, 2012  
Wharton Hauck Award for Excellence in Teaching by a Tenured Faculty Member, 2008

## **VISITING PROFESSOR**

Kinshasa (1973-76), Berkeley (1980), Paris VII (1980), Laval (1982), Brazzaville (1983), Wharton (1984), Tokyo (1985), Federal Polytechnic School Zurich (1993), Karlsruhe (1995), Tsinghua (1995, 2002, 2006, 2011), Nankai (1996), La Sapienza (2003), Kyoto (2013), Pontificia Universidad Católica de Chile (2016)

## **BOOKS**

Automobile Insurance: Actuarial Models

English: Kluwer, 1985, xvii+251 pages. Second printing: 1996

French: Fernand Nathan, 1983, 178 pages

Spanish: Centro de Estudios del Seguros, Madrid, 1996, 278 pages

Korean: Korea Insurance Development Institute, 1996, 186 pages

Russian: Steklov Institute, 1998, 316 pages. Second printing: 2003

Bonus-Malus Systems in Automobile Insurance

English: Kluwer, 1995, xxvi+285 pages.

Mandarin: Economic Science Publishing House, Beijing, 1997, 238 pages

Russian: Steklov Institute, 1999, 268 pages. Second printing: 2003

Japanese: Institute of Actuaries of Japan, 2001

Insurance Regulation in Europe and the United States (with K. Subramanian)

English: Huebner Foundation Monograph, 1997, 152 pages

Spanish: Universidad de la Republica, Montevideo, 1998, 143 pages

Mandarin: Economic Science Publishing House, Beijing, 1999, 152 pages

Encyclopedia of Actuarial Science (as one of 12 editors)

John Wiley and Sons, Chichester, UK, 2004, 1,842 pages

## JOURNAL ARTICLES

- Jeux récurrents: critères de détermination de  $\epsilon$  pour les stratégies  $\epsilon$ -optimales. *CERO*, 12, 1970, 110-113
- Optimalité d'un contrat d'échange de risques entre assureurs. *CERO*, 15, 1973, 139-156
- Une nouvelle définition de l'équitabilité pour les jeux de hasard à deux joueurs. *Ann. Institut Henri Poincaré*. B, 9, 1973, 193-204
- Application au paradoxe de Saint-Pétersbourg. *Ann. Institut Henri Poincaré*. B, 9, 1973, 205-214
- Sur la détermination d'un contrat optimal de réassurance. *ASTIN*, 7, 1973, 165-180
- Caractérisation des échelles de production optimales en avenir déterministe (with K. de Vries and M. Hallin). *CERO*, 15, 1973, 397-404
- A New Concept of Value for Games without Transferable Utilities. *Internat. J. Game Theory*, 2, 1973, 205-214
- Sur l'emploi des fonctions d'utilité en assurance. *BARAB*, 70, 1975, 64-73
- Si les assurés connaissaient la programmation dynamique. *BARAB*, 70, 1975, 54-63
- Sur les critères de détermination d'un tarif bonus-malus optimal. Application à l'assurance automobile au Zaïre. *Ann. Faculté Sciences U.NA.ZA.*, 1, 1975, 338-366
- Driver Versus Company: Optimal Behaviour of the Policyholder. *Scand. Act. J.*, 1976, 209-219
- Critique du tarif automobile belge. *BARAB*, 72, 1977, 93-109
- Echange de risques entre assureurs et théorie des jeux. *ASTIN*, 9, 1977, 155-180
- La soif du bonus. *ASTIN*, 9, 1977, 181-190
- Selection Procedures of Regression Analysis Applied to Automobile Insurance. *MVSV*. 1977, 143-160
- Simulation of an Automobile Portfolio (with F. Corlier and D. Muhokolo). *Geneva Papers on Risk and Insurance*, 11, 1979, 40-46
- A Non Symmetrical Value for Games without Transferable Utilities. Application to Reinsurance. *ASTIN*, 10, 1979, 195-214
- Comment lutter contre la sicklanémie. *Ann. Faculté Sciences U.NA.ZA.* 5, 1979, 157-170
- Selection Procedures of Regression Analysis Applied to Automobile Insurance. Part II: Sample Inquiry and Underwriting Applications. *MVSV*, 79, 1979, 65-71
- How to Define a Bonus-Malus System with an Exponential Utility Function. *ASTIN*, 10, 1979, 274-282
- Managing Sickle-Cell Anemia in Zaïre. *Management Science*, 25, 1979, 922-928

A Game Theoretic Look at Life Insurance Underwriting. *ASTIN*, 11, 1980, 1-16

Equilibrage d'un marché de réassurance (with M. Loréa). *ASTIN*, 11, 1980, 107-118

Concepts de solution dans un marché d'échange de risques. *CERO*, 23, 1981, 261-274

Les trois marchés de l'assurance. Commentaire (with F. Corlier). *Geneva Papers on Risk and Insurance*, 20, 1981, 33-36

The Core of a Reinsurance Market (with B. Baton). *ASTIN*, 12, 1981, 57-71

Méthodes d'ajustement de distributions de sinistres (with A.M. Gossiaux). *MVSV*, 81, 1981, 87-94

Claims Provisions in Liability Insurance. *J. of Forecasting*, 1, 1981, 303-318

A New Approach to Reinsurance: Multicriteria Analysis (with J.M. Reinhard and Ph. Vincke). *The Prize-Winning Papers in the 1980 Boleslaw Monic Competition*, 1981, 7-42

The Bargaining Set of a Reinsurance Market (with B. Baton). *ASTIN*, 12, 1981, 101-114

Fonctions d'utilité et assurance. *Revue belge de statistique, d'informatique et de recherche opérationnelle*, 21, 1982, 43-65

Détermination des provisions pour sinistres en assurance automobile: approches déterministes et stochastiques (with J.L. Kiehm). *CERO*, 24, 1982, 281-296

Calcul des primes et marchandage (with D. Briegleb). *ASTIN*, 13, 1982, 115-131

Analyse économique d'un procès entre un plaignant et une compagnie d'assurances. *Blätter der DGVM*, 16, 1983, 21-29

Une propriété du principe de l'espérance mathématique (with E. Vandermeulen). *Bull. Trimestriel Institut Actuaire Français*, 323, 1983, 5-14

An Application of Game Theory: Cost Allocation. *ASTIN*, 14, 1984, 61-81

The Influence of Expense Loadings on the Fairness of a Tariff. *ASTIN*, 14, 1984, 165-171

A Model to Evaluate the Rebuilding Cost of Dwellings (with F. Corlier and J.F. Ingenbleek). *ASTIN*, 16, 1986, 45-62

Chains of Reinsurance Revisited (with J.P. Quairière). *ASTIN*, 16, 1986, 77-88

Construction of the New Belgian Motor Third Party Tariff Structure. *ASTIN*, 18, 1988, 99-112. Reprinted in *GIRO Bull.*, 1987, and *Etudes et Dossiers*, n° 104, Geneva Assoc., 57-70

A Comparative Analysis of Most European and Japanese Bonus-Malus Systems. *J. Risk and Insurance*, LV, 1988, 660-681

Designing a New Merit-Rating System for Belgium (in Japanese). *Bull. Institute of Actuaries of Japan*, 41, 1988, 413-434

Recenti tendenze del mercato della assicurazioni sulla vita in USA. *Assicurazioni*, LVI, 1989, 119-123

What is a Sports Car? (with J.-F. Ingenbleek). *ASTIN*, 18, 1988, 175-187. Japanese translation in *Bull. Inst. Actuaries of Japan*, 42, 1989, 189-200

Fuzzy Insurance. *ASTIN*, 20, 1990, 33-56. In Japanese in *Bull. Inst. Act. Japan*, 43, 1990, 75-90

Variabili rapportate alla salute nella tariffazione dell'assicurazione americana sulla vista: un'indagine. *Assicurazioni*, LVII, 1990, 440-448

Cooperative Game Theory and Its Insurance Applications. *ASTIN*, 21, 1991, 17-40. Japanese translation in *Bull. Inst. Actuaries of Japan*, 44, 1991, 171-183

Il sesso come variabile tariffaria nelle coperture assicurative USA. *Assicurazioni*, LVII, 1991, 121-126

L'Europa del 1992 e le assicurazioni: lezioni dagli Stati Uniti. *Assicurazioni*, LIX, 1992, 413-422

Three Actuarial Applications of Decision Trees. *MVSV*, 1992, 157-179

L'AIDS e l'industria delle assicurazioni negli USA. *Assicurazioni*, LX, 1993, 205-217

An Analysis of the Taiwanese Merit-Rating System. *Bull. Act. Inst. Republic of China*, 1993, 17-58

High Deductibles and the Japanese Bonus-Malus System (in Japanese). *Bull. Inst. Act. Japan*, 1993

An Analysis of the Japanese Merit-Rating System (in Japanese). *Bull. Inst. Actuaries of Japan*, 1993

Redditività dell'assicurazione contro i danni negli Stati Uniti. Utilizzazione di modelli finanziari. *Assicurazioni*, LX, 1993, 484-497

High Deductibles Instead of Bonus-Malus: Can it Work? (with H. Zi). *ASTIN*, 24, 1994, 75-86

A Comparative Analysis of 30 Bonus-Malus Systems (with H. Zi). *ASTIN*, 24, 1994, 287-309

The Maastricht Treaty: Insurance Contracts in Ecus? (in Japanese). *Bunken J*, 106, 1994, 205-224

Sur la rapidité de convergence du nouveau système bonus-malus italien. *Giornale dell'Istituto Italiani degli Attuari*, 1994, LVII, 1-8

30 systèmes de bonus-malus. Une Analyse Comparative. *Risques*, 23, 1995, 119-130

A Comparative Analysis of the Korean Bonus-Malus System: Tough or Mild? (with K.T. Jung and H. Zi). *Korean Insurance J.*, 46, 1996, 247-274

Bonus-Malus Systems: The European and Asian Approach to Merit-Rating. *North American Actuarial J.*, 2, 1998, 26-38

Estimating Adverse Selection Costs in an Insurance Market with Genetic Testing for Breast and Ovarian Cancer (with K. Subramanian, K. Armstrong, J. Hershey, M. Pauly and D. Asch). *J. of Risk and Insurance*, 66, 1999, 531-550

Pricing Term Insurance in the Presence of a Family History of Breast and Ovarian Cancer (with K. Subramanian, K. Armstrong and D. Asch). *North American Actuarial J.* 2000, 75-87

Genetic Issues Around the World. *Giornale dell'Istituto Italiani degli Attuari*, 2000, 256-258.

Genetica e assicurazione. Il caso del carcinoma mammario e ovarico. *Rivista Diritto ed Economia dell'Assicurazione*, 2001, 115-131

Why Do Females Live Longer Than Males? *North American Actuarial J.* 6, 2002, 21-37. Also *Belgian Actuarial J.* 2001, 1, 1-9

Life Insurance and Breast Cancer Risk Assessment: Adverse Selection, Genetic Testing Decisions, and Discrimination (with K. Armstrong, B. Weber, G. Fitzgerald, J. Hershey, M. Pauly, K. Subramanian, and D. Asch). *American J. of Medical Genetics*, 120A, 2003, 359-364

Challenges to actuarial science in the 21<sup>st</sup> century. *ASTIN*, 34, 2004, 271-283

Adverse Selection, Family History and Genetic Test Results. *On The Risk*, 20, 2004, 60-67

Bonus-Malus Systems in a Deregulated Environment: Forecasting Market Shares Using Diffusion models (with K. Viswanathan). *ASTIN*, 35, 2005, 299-319

Causes of Increasing Ages at Marriage: An International Regression Study (with N. Saardchom). *Marriage and Family Review*, 37 (3), 2005, 73-97

The Cost of Firearm Deaths in the United States: Reduced Life Expectancies and Increased Insurance Costs. *J. of Risk and Insurance*, 72, 2005, 359-374

Actuarial Science as a Scientific Discipline: The Next Step. *British Act. J.*, 11, III, 2005, 381-386

Défis de la science actuarielle au 21<sup>e</sup> siècle, *Risques*, 67, 2006, 101-112

Reducing firearm violence: a research agenda (with colleagues from the National Research Collaborative on Firearm Violence), *Injury Prevention*, 2007, 13, 80-84

Adverse Selection in Term Life Insurance Purchasing due to the BRCA1/2 Genetic Test and Elastic Demand (with K. Viswanathan, K. Withers, K. Armstrong, A. Baumritter, J. Hershey, M. Pauly, D. Asch). *J. of Risk and Insurance*, 2007, 74, 65-86

Years of Life Lost due to Gunshot Injury to the Spinal Cord and Brain (with T. Richmond). *American J. of Physical Medicine and Rehabilitation*, 2008, 87, 609-618

Is the Design of Bonus-Malus Systems Influenced by Insurance Maturity or National Culture – Evidence from Asia (with S. Park and C-T. Chua), *Geneva Papers on Risk and Insurance: Issues and Practice*, 2010, 35, S7-S27.

Culture Matters: Long-Term Orientation and the Demand for Life Insurance (with S. Park). *Asia-Pacific Journal of Risk and Insurance*, 2011, 5, 2, 1-23.

The Impact of Culture on the Demand for Non-Life Insurance (with S. Park). *ASTIN Bulletin*, 2012, 42, 501-527.

Improving Money's Worth Ratio Calculations: the Case of Singapore's Pension Annuities (with J. Fong and Y.K.Tse). *Asia-Pacific Journal of Risk and Insurance*, 2014, 8, 1-26.

Issues in Bonus-Malus Systems Design. *The Journal of Risk Management*, 2014, 25, 1-22.

The Use of Annual Mileage as a Rating Variable (with S. Park and K. Wang). *ASTIN Bulletin*, 2016, 46, 39-69.

The Impact of Covariates on a Bonus-Malus System: An Application of Taylor's Model (with S. Park and K. Wang). *European Actuarial Journal*, 2015, 5, 1-10.

The Opaqueness of Structured Bonds: Evidence from the U.S. Insurance Industry (with Sojung Park and Xiaoying Xie). Submitted

The cost of high suicide rates in Japan and South Korea: reduced life expectancies (with Elliot Oblander and Sojung Park). Working paper

## **CHAPTERS OF BOOKS**

Smoothing a Bonus-Malus System. *New Frontiers in Insurance*, Tel Aviv, 1979, 123-133

Reinsurance as a Cooperative Game. *Applied Game Theory*, Physica Verlag, 1979, 254-269

Borch's Theorem: A Historical Survey of Applications. "*Risk, Information and Insurance*", Kluwer, 1990, 15-37

A New Earthquake Insurance/Reinsurance Index: Its Uncertainties and Future Developments (with C. Taylor and C. Tillman). "*Uncertainty Modeling and Analysis: Theory and Applications*", B. Ayyub and M. Gupta, eds, Elseviers, 1994, 497-514

Automobile Insurance in the European Communities after Europe 1992 (in Korean). 55-page monograph, Korea Insurance Development Inst., 1995

Cooperative Game Theory, *Encyclopedia of Actuarial Science*, John Wiley, 2004, 1, 369-375

Bonus-Malus Systems, *Encyclopedia of Actuarial Science*, John Wiley, 2004, 1, 184-191

Borch's Theorem, *Encyclopedia of Actuarial Science*, John Wiley, 2004, 1, 195-200

ASTIN, *Encyclopedia of Actuarial Science*, John Wiley, 2004, 1, 121-123

National Associations of Actuaries, *Encyclopedia of Act. Science*, John Wiley, 2004, 2, 1155-1157

## CONFERENCE PROCEEDINGS

La formation de l'actuaire. *21st IAA*, National Report, 1980, N, 13-22

Effet sur le coût de la sécurité sociale de différentes stratégies de lutte contre la drépanocytose au Zaïre. *21st IAA*, 1980, 5, 141-148

Applications of Game Theory to Insurance. *Record Society of Actuaries*, 1980, 959-963

Statistical Analysis of an Automobile Portfolio. *18th Internat. Insurance Seminar*, 1982, 83-95

Some Thoughts on the Use of the Arbitration Clause (with B. Berliner). *22nd IAA*, 1984, 1, 185-194

Comparison of Major Bonus-Malus Systems. Design of a New System for Belgium. *Trans. 1986 World Congress Insurance Law*, 1986, 246-258

Proposition de Réforme de la Structure Tarifaire pour véhicules de tourisme et affaires. *Trans. 1986 World Congress Insurance Law*, 1986, 259-288

Actuarial Challenges of Reinsurance. *23rd IAA*, 1988, R, 219-251

Application of Borch's Theorem to a Graph of Reinsurance (with K. Courtoy). *23rd IAA*, 1988, R, 252-259

Cheating in a Reinsurance Market (with K. Courtoy). *23rd IAA*, 1988, R, 260-265

Empirical Determination of an Optimal Deductible in Automobile Collision Insurance (with Ph. Siraux). *23rd IAA*, 1988, R, 266-275

A Practical Comparison of Premium Calculation Principles (with M. Bughin). *23rd IAA*, 1988, R, 276-284

The Actuary of the Future: A European Perspective. *Centennial Celebration*, Society of Actuaries, 1989, 1, 270-274, 282-286

Rentabilité de l'assurance non-vie aux Etats-Unis. Utilisation de modèles financiers. *Proc. Internat. Conference on Profit Testing in Insurance*, V.U.B., 1990

SIDA: A doença do século. *Egide*, 38, 1990, 12-17

From Fuzzy Set Theory to Hierarchical Credibility Models. *First SCOR Internat. Prize in Actuarial Science*, 1991, 3-5

Negative Binomial or Poisson-inverse Gaussian? *24th IAA*, 1992

American Property/Liability Insurers and Europe 1992. *Record Conference of Consulting Act*, 1992

The Mathematical Modeling of Catastrophe Claims. *Second SCOR Internat. Prize in Actuarial Science*, 1993, 1-6

Models for Earthquake Insurance and Reinsurance Evaluation (with C. Taylor and C. Tillman). *Proc. Second Internat. Symposium on Uncertainty Modeling and Analysis*, IEEE Computer Society Press, 1993, 271-274



EEC, NAFTA and Mercosul: New Challenges for Actuaries. *Proc. First Congress of Brazilian Actuaries*, 1994

An Analysis of the Brazilian Bonus-Malus System. *Proc. Second Congress of Brazilian Act.*, 1996

Price Elasticity of Demand for Term Insurance and Adverse Selection (with M. Pauly, K. Withers, K. Subramanian-Viswanathan, J. Hershey, K. Armstrong, D. Asch). *NBER Working Paper 9925*, 2003

## **PRESENTATIONS**

**Before 2000:** 183 invited lectures and presentations at international meetings on game theory, automobile insurance, and applications of utility theory, in Australia, Austria, Belgium, Brazil, Canada, China, Congo, Costa Rica, Denmark, England, Finland, France, Germany, Greece, Hungary, Israel, Italy, Japan, Kenya, Korea, Malaysia, the Netherlands, Norway, Portugal, Scotland, Sweden, Switzerland, Taiwan, Tunisia, United States, Uruguay, Zaire

### **Noteworthy invitations before 2000:**

Keynote Lecture, Berkeley-Stanford Symposium on Operations Research, 1980

Four invitations to the Oberwolfach Mathematical Institute, 1980, 1982

Keynote Address: 23<sup>rd</sup> International Congress of Actuaries, Helsinki, 1988

Invited Lecturer, Centennial Meeting of the Society of Actuaries, Washington, DC, 1989

Invited Lecturer, 75<sup>th</sup> Anniversary Meeting, Casualty Actuarial Society, New York, 1989

### **Since 2000**

Genetic Testing: Insurance Issues

Rutgers Actuarial Club (2000)

Thai Actuarial Society, Bangkok (2000)

The Royal Society, London (2000)

ASTIN Colloquium, Sardinia (2000)

Catholic U., Milan (2000)

La Sapienza U., Rome (2000)

Institute of Italian Actuaries, Rome (2000)

U. Penn Pro-seminar (2001)

Wharton ExecEd for the Society of Actuaries (2001)

LDI seminar at Merck Pharmaceuticals (2001)

Heriot-Watt U., Scotland (2002)

Wharton ExecEd for the Society of Actuaries (2002)

Tsinghua U., Beijing (2002)

Free U. Brussels (2002)

Keynote address, 9<sup>th</sup> Symposium on Finance, Banking, Insurance, Karlsruhe U. (2002)

Keynote speaker, ASTIN Colloquium, Berlin (2003)

Keynote speaker, 9<sup>th</sup> International Conference on Insurance Economics, Paris (2003)  
Keynote address, 21th Congress of the International Committee for Life, Disability and  
Health Insurance Medicine, Venice (2004)  
Swiss Re, Zurich (2004)  
FUCAM, Mons, Belgium (2004)  
Bergen School of Economics, Norway (2004)  
ACLI – Annual Meeting of the Medical Section, Baltimore (2004)  
U. Barcelona (2005)  
Tsinghua U., Beijing (2006)  
Singapore Management University (2010)  
Statistical Genomics Seminar, U.Penn (2011)

#### Why do Females Live Longer than Males?

ASTIN Colloquium, Washington DC (2001)  
LDI seminar at Merck Pharmaceuticals (2001)  
Wharton IRM seminar (2002)  
La Sapienza U., Rome (2003)  
Swiss Re, Zurich (2004)

#### The Impact of Firearm Deaths on Life Expectancies

Wharton IRM seminar (2003)  
School of Medicine, U. Penn (2003)  
FICAP seminar, U. Penn (2004)  
Pennsylvania Commission to Address Gun Violence, Harrisburg (2005)  
Insurance: Mathematics and Economics Annual Congress, Quebec City (2005)  
Tsinghua U., Beijing (2006)  
School of Arts and Science, U. Penn (2007)  
U. Penn family week-end (2008)  
Actuaries Club of Philadelphia (2008)  
Wharton Statistics Department (2010)  
Temple University (2010)  
Wharton Politics and Business Association (2013)  
Wharton BizTalks (2014)

#### The Design of Bonus-Malus Systems in Automobile Insurance

NIDA, Bangkok, 2000  
Institute of Actuaries of India, Mumbai (2000)  
Portuguese Actuarial Association, Lisbon (2004)  
Statistics Department PhD seminar (2011)  
Pontificia Universidad Católica de Chile mini-course (2016)

## Insurance and Financial Applications of Markov Chains

La Sapienza U., Rome (2003)  
NIDA, Bangkok (2005)  
UFRJ, Rio de Janeiro (2006)  
Portuguese Actuarial Assoc., Lisbon (2006)  
University of Barcelona Insurance and Risk Management Summer School (2011)  
Kyoto University (2013)

## Stochastic Processes

Institute of Actuaries of India, Mumbai (2000)  
Association of Hong Kong Actuaries (2000)  
Tsinghua University (2011)

Life Insurance Mathematics, Tsinghua U., Beijing (2002)

Challenges to actuarial science in the 21<sup>st</sup> century. Keynote lecture, 35<sup>th</sup> ASTIN Colloquium, Bergen, Norway (2004)

Life Contingencies, Tsinghua U. (2006)

Is the Design of Bonus-Malus Systems Influenced by Insurance Maturity or National Culture?

Singapore Management U. (2008)  
Main lecturer Hans Bühlmann 80<sup>th</sup> Birthday Colloquium, Swiss Act. Assoc., Zurich, 2010  
World Risk and Insurance Economics Congress, Singapore, 2010

Opportunities and Challenges for Actuarial Science Graduates.

Tan Sri Jeffrey Cheah Distinguished Lecture, Sunway U. College, Kuala Lumpur, 2010  
Penn Actuarial Club (2011)  
Penn Actuarial Club (2012)  
Penn Actuarial Club (2014)

The Impact of Culture and Political Risk on Non-life Insurance

Keynote speaker, 40<sup>th</sup> ASTIN Colloquium, Madrid (2011)  
China Center for Insurance and Risk Management, Beijing (2011)  
Japanese Association of Risk, Insurance, and Pensions (2013)

The Use of Annual Mileage as a Rating Variable

Statistics department doctoral seminar (2012)  
 Wharton – Penn Risk and Insurance Program (2012)  
 42<sup>nd</sup> ASTIN Colloquium, The Hague (2013)  
 Japanese Institute of Actuaries, Tokyo, (2013)  
 Annual Conference, Asia-Pacific Risk and Insurance Association, New York City (2013)  
 48<sup>th</sup> Actuarial Research Conference, Philadelphia (2013)  
 Joseph Wharton Scholars Senior Research Seminar (2014)  
 2<sup>nd</sup> European Actuarial Journal Conference, Vienna (2014)  
 Pontificia Universidad Católica de Chile (2016)

#### Examples of regulatory constraints in insurance

Keynote speaker, 12<sup>th</sup> International Conference on Credit Risk Evaluation, Venice (2013)

#### L'Europe et les Etats-Unis: Deux modeles de societe tres differents

Keynote speaker, 50<sup>th</sup> Anniversary, Belgian Masonic Lodge (2014)

#### Retirement of Baby-Boomers in the USA: A Disaster in the Making.

Keynote Speaker, 5<sup>th</sup> Iberian Actuarial Congress, Lisbon (2016)

### **SELECTED ACTIVITIES FOR PROFESSIONAL AND SCIENTIFIC ORGANIZATIONS**

1. 1980 Honorary Fulbright-Hays grant (Belgian American Educational Commission).
2. 1981-1987 Chairman, Assoc. of Actuaries from the Free U. of Brussels
3. 1981-present ASTIN: Chairman (1984-1990 and 2001-2002), Treasurer (1981-1999), Vice-Chairman (1998-2001, 2002-2006), Delegate of International Actuarial Assoc. (1995-2008), Honorary Chairman (2008 - lifetime)
4. 1983-1987 Senior Vice-President and Chief Actuary; P.S Société d'Assurances
5. 1983-1987 Belgian Professional Union of Insurance Companies. Chairman: Automobile Statistics Permanent Committee, Automobile Technical Commission, New Automobile Tariff Structure Commission
6. 1984-1998 Editor-in-Chief, Bull. International Actuarial Assoc.
7. 1984-1987 Executive Committee, Insurance Development Bureau, Advisor for French-speaking African Companies
8. 1985-1987 Chairman, Belgian Automobile Joint Underwriters Assoc.
9. 1989-2003 President, Jury, Internat. S.C.O.R. Actuarial Prizes
10. 1993-1995 Delegation Leader, People to People cooperation missions, Russia and Ukraine (1993), China (1995)
11. 1997-present Editorial Board, ASTIN Bulletin
12. 2011-present Associate Editor, Annals of Actuarial Science
13. 2015-present Associate Editor, Journal of Risk Management

14. 2015-present Scientific Committee, 44<sup>th</sup> ASTIN Colloquium, Lisbon
- 15 2015-present Scientific Committee, International Actuarial Association Congress, Berlin

## **WHARTON SCHOOL COMMITTEES AND ACTIVITIES**

Director, Actuarial Science Program (1987 – present)

Chair, Insurance and Risk Management Department (1994 – 2003)

LDI Senior Fellow (1999 – present)

Wharton School Committees: Research Policy (1988 - 89), International (1989 - 2000),  
Graduate Curriculum (1990 - 1992, 2003 - 2006), Lippincott Library (1994-1995),  
Undergraduate Curriculum (Chair, 2006 - 2008), Doctoral Executive Committee (2007 -2008)  
Faculty Survey Committee (2009-2010), INSR Q-Review Committee (2010), Curriculum  
Innovation and Review Committee (2011 – 2014)

INSR Department Committee: Scholarship and Awards (1996 – 2011)

Administrative Board, Huebner Foundation (2001 – 2003)

FICAP Associate (2005 – present)

University Academic Planning and Budget Committee (2007- 2010)

University Council on Honorary Degrees (2010 – 2011)

Wharton/Penn Risk and Insurance Program: Steering Committee (2012 – 2015)

Wharton Faculty Council for Undergraduate Research (2014 – present)