



INVITATION


Come join your colleagues and peers from around the world for the Pension Benefits and Social Security (PBSS) Colloquium, to be held on June 4th-7th in Cancun.

The PBSS 2017 Scientific Committee is assembling a preliminary agenda with key issues facing today's public and private concerns on the sustainability of pensions and social security.


Actuaries and non-actuaries from all disciplines involved with technical and social aspects of pensions and social security are encouraged to participate. This Call is not limited to formal papers. The PBSS 2017 Scientific Committee is also interested in less formal presentations, with particular emphasis in experiences implementing pensions systems using behavioral economics and recent legislation concerning hybrid and "Defined Ambition" systems.

In fact, the Scientific Committee will award two prizes: one for the best scientific paper and one for the best essay or presentation of applied work.

Whether you are an author or prospective presenter or anticipate being a member of the audience, we invite you to be in Cancun 2017 to renew old friendships, and make some new ones, while you continue to learn and expand your relevant knowledge to become more effective.



Act. Abraham Hernández
President of the Organizing Committee



Act. Alejandro Bonilla García, M.Sc., Ph.D.
President of the Scientific Committee

TIMELINE

January 31 th 2017	Deadline for authors to submit proposals for potential papers/presentations, including a brief abstract of the proposed paper(s)/presentation(s). See proposal requirements above
February 28 th 2017	Authors informed of results of committee review of proposals
March 31 th 2017	First draft papers/presentations due for committee review
April 30 th 2017	Determination of draft scientific program, successful authors notified, accepted abstracts published on Web Site
May 15 th 2017	Presentation file must be submitted.

June 4-7th, 2017

PBSS Colloquium
Cancun, Mexico

Accepted Topics

Defining Ambition
Pension Plans
Social Security
Behavioral Economics
Migration
Demographics
Regulation
Information Security

Two Prizes

"Best Theoretical Paper and
Best Practical Paper"

Submission deadline

January 31th, 2017
Submission to
Alejandro Bonilla García
bonilla@actuarial-i.com
or to
Jonathan González Salgado
jgonzalez@vitalis.com.mx

Notification of accepted
papers

April 30th, 2017



ABOUT CANCUN

Cancun is located in the Yucatan Peninsula, in the Mexican State of Quintana Roo and it is well known for its tropical climate.



You can enjoy lots of different activities such as mountain biking, motorcycling in the jungle and swimming in the cenotes. Furthermore, you can enjoy the longest zip riders in Latin America. For watersports enthusiasts, Cancun offers diving, snorkeling, and fishing.



For night lovers, Cancun has some of the best nightclubs in the world where you can hear all kind of Latin and other rhythms, like salsa, disco and R&B.

It also is one of the culturally richest cities in Mexico. An aura of mystery and majesty still lingers in the Mayan archaeological sites such as Chichen Itzá, Tulum and Cobá, to mention a few.



June 4-7th, 2017

**PBSS Colloquium
Cancun, Mexico**

NATURE

ADVENTURE

SPORTS

GASTRONOMY

SHOPPING

CULTURE

AND MORE!

Come and join us!

**PBSS Colloquium
Cancun, Mexico
2017**

<http://www.actuaries.org/cancun2017/>



Call for Papers

Don't miss this great opportunity to meet, share and learn from other actuaries from all over the world.

Because today's economy needs a strong actuarial base of professionals to support its operations, this colloquium will have top actuarial expositors presenting the latest actuarial and scientific techniques with practical applications. Some of the key scientific areas of this meeting will be:

ASTIN

- Loss reserving and capital adequacy
- Insurance pricing and optimization
- Reinsurance and risk transfer
- Risk management
- Natural hazards, disaster, catastrophe risks and pricing
- Capital management, allocation and pricing
- Dividend theory and practice
- Longevity, health, critical illness and employment insurance
- Risk theory
- Copulas: theory and applications
- Extreme value statistics

AFIR/ERM

- Investment and asset allocation
- Portfolio risk management
- Bond portfolio management
- Asset/Liability Management (ALM)
- Enterprise risk management (ERM)
- Risk measures and capital allocation
- Managing retirement accumulations and decumulations
- Dynamic asset allocation
- Asset and derivative pricing
- Longevity, health and mortality risk
- Pricing and risk management for product guarantees
- Solvency and risk based capital

For the first time we will have parallel scientific presentations, educational workshops and plenary sessions. Some of the topics of the education workshops will be:

- Pricing
- Reserving
- Reinsurance
- Capital & Solvency
- ERM
- Derivatives Pricing
- Interest rate models
- Longevity risk

Guidelines and deadlines for paper submissions can be found at: http://www.actuaries.org/panama2017/call_papers.cfm

For more information, please contact: panama2017@actuaries.org



Best Paper Awards

First Announcement

As part of the International Congress of Actuaries in 2018, the Scientific Committee plans to award a number of Best Paper Awards in six given subject areas. After consideration of all submissions, the Scientific Committee will decide on the number of awards and the respective cash prizes of up to EUR 1,500 for each subject area. If there are no suitable submissions, the Scientific Committee reserves the right to refrain from awarding any prizes.

Up to two Best Papers will be awarded in each of the following subject areas:

- **Big Data – Algorithms, Analysis and Application**
- **Demographic Change and Longevity**
- **Aspects of Long-Term Savings: Uncertainty in Low Real Returns, Longevity and Inflation**
- **Behavioral Aspects of Insurance Mathematics**
- **Long-Term Risk: Modelling, Measuring, Managing and Economic Valuation**
- **Mathematical Aspects of Emerging Risks**

Deadline for submissions is July 31, 2017. Further information on submission procedure and requirements will be available in due course on <http://ica2018.org/>.

BIG DATA – ALGORITHMS, ANALYSIS AND APPLICATION

The Scientific Committee will award up to two Best Papers in the subject area

Big Data – Algorithms, Analysis and Application.

Nowadays, huge amounts of data are available and used in various areas of our lives. Computers in modern cars store a multitude of parameters, smart phones collect their users' health data, weather forecasts relying on detailed data may warn property owners and genetic records may help to individualize premiums in life or health insurance. In daily life, the gathering and use of big data has become common practice when, for example, creating internet user profiles or analyzing data from retailers' store cards. In addition, insurers will increasingly be forced to use all available data in order to learn about customer needs. One can further expect that, in the future, insurers will offer risk-specific premiums to the customers by evaluating all available data.

Therefore, we strongly encourage the submission of papers related to the various aspects of Data Science.

Particular subjects of interest can be (but are not limited to):

- Claims settlement and big data
- Telematics
- Property risks especially with regard to geolocation
- Rating based on pattern recognition
- Early warning (mobile phone app)
- Connecting Big Data to actuarial problems
- Climate change and Nat-Cat
- Fraud detection
- Genetics – Impact on Life and Health Insurance
- Individualization versus collectivization
- Prediction of customer behavior

New approaches are as welcome as suitable modifications of existing and established concepts (from non-actuarial fields).

DEMOGRAPHIC CHANGE AND LONGEVITY

The Scientific Committee will award up to two Best Papers in the subject area

Demographic Change and Longevity.

Longevity is a phenomenon that is observed in most societies worldwide. While it seems desirable for individuals to live long and hopefully healthy lives, ever-increasing life expectancy is a challenge for providers of annuities and long-term care products. In combination with a decline in fertility, it leads to major demographic change with significant effects on social security systems.

We have therefore chosen longevity and demographic change as one topic for the Best Paper Awards of the ICA 2018.

Particular subjects of interest can be (but are not limited to):

- Impact from megatrends on life insurance risk: migration, urbanization, climate
- New models for predicting longevity / mortality improvements
- Demographic change and its impact on long-term care and occupational disability insurance
- Predictive modeling and price discrimination applied to annuities and long-term care products
- Designing and pricing annuities and long-term care products in a stochastic environment
- Private vs. public solutions for providing income for pensioners
- Hybrid systems for pension financing combining pay-as-you-go systems and funded systems (consequences of low interest rates and a declining number of new entrants)
- Novel techniques for mitigating longevity and long-term care risks

New approaches are as welcome as suitable modifications of existing and established concepts.

ASPECTS OF LONG-TERM SAVINGS: UNCERTAINTY IN LOW REAL RETURNS, LONGEVITY AND INFLATION

The Scientific Committee will award up to two Best Papers in the subject area:

Aspects of Long-Term Savings: Uncertainty in Low Real Returns, Longevity and Inflation

Individuals are increasingly being asked to save for retirement during their working lives and then, in their golden years, spend their accumulated assets appropriately. They do so against the backdrop of a rapidly-aging population with low fertility rates and rising longevity, as well as public pension programs that are under fiscal pressure. Moreover, funded pension systems must manage longevity risk, inflation risk and capital market risk, all of which are placing a strain on both individuals and providers of pension solutions (life insurance companies, pension funds and mutual funds). The low interest rate environment has particularly important implications for the demand for, and supply of, pension products.

We encourage the submission of papers related to all aspects of long-term saving, especially with regard to modeling uncertain inflation, longevity, and interest rates.

Particular subjects of interest could be (but are not limited to):

- The impact of inflation risk on the accumulation and decumulation of pension assets
- Dynamic portfolio choice over the life cycle amid uncertain interest rates and inflation dynamics
- Asset/liability management of pension plans over time
- The role of fixed and variable life annuities as part of a pensions program
- Implications of solvency regulation and the low interest rate environment in life and health insurance.
- Developments in life insurance product design within a changing financial and demographic world
- The role of income and investment guarantees in retirement products
- Implications of the low interest rate environment on DB, DC, and hybrid pension programs

New approaches are as welcome as suitable modifications of existing and established concepts.

BEHAVIORAL ASPECTS OF ACTUARIAL MATHEMATICS

The Scientific Committee will award up to two Best Paper(s) in the subject area

Behavioral Aspects of Insurance Mathematics.

Traditional actuarial models have, at best, assumed customers to behave in accordance with historic experience, if not ignoring customer behavior altogether. Only in the last 15 years has dynamic modelling of customer behavior gained importance in practical applications, most notably with the introduction of the stochastic embedded-value concepts in life insurance. However, over the last few years it has become apparent that customers do not necessarily behave in a “financially rational” manner, but that decisions such as surrender, renewal, annuity take-up or openness to cross- and up-selling are, in fact, influenced by many more factors.

Therefore, we encourage the submissions of papers that address the various aspects of customer behavior and their application to insurance.

Particular subjects of interest can be (but are not limited to):

- Global and individual drivers of customer behavior in life, general and health insurance
- Impact of changes in the social, political and financial environment on (savings) behavior (including surrender, making policies paid-up, annuity take-up, new business, renewal, reinvestment)
- Mathematical and statistical methods to describe, model and quantify customer behavior
- Allowance for customer behavior in internal models
- Applications for retention and renewal management, cross- and up-selling
- Methods and applications of customer segmentation, in particular in connection with Big Data

New approaches are as welcome as suitable modifications of existing and established concepts.

LONG-TERM RISK: MODELLING, MEASURING, MANAGING AND ECONOMIC VALUATION

The Scientific Committee will award up to two Best Papers in the subject area

Long-Term Risk: Modelling, Measuring, Managing and Economic Valuation.

Insurance contracts very often contain long-term commitments, sometimes from both the insurer and the insured. Conversely, many models and concepts developed in financial and actuarial mathematics are based on assumptions that are at least questionable to prevail over a long time period.

Therefore, we strongly encourage the submission of papers that are related to all aspects of long-term risk, especially with regard to modelling, measuring, and managing those risks and their economic valuation.

Particular subjects of interest can be (but are not limited to):

- Appropriate risk and performance measurement concepts with a particular emphasis on pension investments and chance-risk classifications of pension products
- A suitable framework for the long-term decisions of an insurance company
- Long-term effects of the regulations imposed by Solvency II on the strategic behavior and the performance of an insurance company
- Interest rate modelling with a view towards a horizon of over 30 years (with possible features such as a changing environment or a prevailing low interest rate scenario)
- Estimation of the long-term behavior of forward rates or interpolation/extrapolation of the current interest rate yield curve
- Economic valuation of long-term commitments (including the valuation of different types of guarantees in insurance and pension products and the valuation for accounting purposes)

New approaches are as welcome as suitable modifications of existing and established concepts.

MATHEMATICAL ASPECTS OF EMERGING RISKS

The Scientific Committee will award up to two Best Papers in the subject area

Mathematical Aspects of Emerging Risks.

Experienced risk managers know that the reason for the next crisis will probably be a risk they cannot even imagine today. Therefore, insurers and reinsurers are increasingly aware of the need to pay attention to emerging risks, coming from changes and developments in areas such as technology, politics and climate, or implied by a situation of financial distress.

In addition to not knowing how those risks will unfold, modeling and quantifying them is a particular challenge, too. Complex interdependencies of risks, non-linear behavior and the absence of large numbers require much more than plain vanilla statistical methods. Moreover, historic data upon which to base assumptions or to fit distributions is a scarce resource. Hence, this is not a task that actuaries can solve by themselves – interdisciplinary collaboration is required to combine subject matter expertise and mathematical as well as modelling skills.

To support the industry in pursuing that important topic, we ask for the submission of papers that address the mathematical aspects of emerging risks and their application to insurance.

Particular subjects of interest can be (but are not limited to):

- Mathematical and statistical methods to describe, model and quantify emerging risks
- Applications to topics such as cyber risk, climate change, autonomous driving or aging society
- Assessment and modeling of complex interdependencies of risks
- Calibration and validation of models given sparse historic data
- Use and validation of expert judgements
- Applications of models from other industries (e.g. chemical, pharmaceuticals, nuclear science and biology) in insurance

New approaches are as welcome as suitable modifications of existing and established concepts.

Call for Papers
Risk Theory Society Annual Seminar
May 5-7, 2017
University of Wisconsin
Madison, WI
Submissions due December 16, 2016

The Risk Theory Society is a group of economists, financial economists, and actuaries who undertake theoretical and applied research in the areas of insurance economics, financial economics related to insurance markets, actuarial science, and more generally in the economic analysis of risk and uncertainty. Membership in the society is earned by presenting a paper at the annual seminar and forfeited by missing two consecutive meetings.

The society invites interested parties to submit papers for the 2017 meeting. Each paper accepted for the meeting is given one hour and fifteen minutes for presentation and defense by the authors. The first twenty minutes of that time are reserved to be free of interruption other than for questions of clarification. After the grace period, discussion is typically vigorous.

Over the past 10 years, the number of submissions ranged from 42 to 69 with an average of 51. Ten papers were selected each year. Although we accept submission of a five-page abstract, most submissions and most accepted papers were in full draft or essentially completed form.

Submissions are due on December 16, 2016. The program committee will notify authors of accepted papers by end of January 2017, or soon thereafter. Accepted papers must be completed and sent for posting on the Risk Theory Society web page by March 1, 2017.

Submissions should be e-mailed as attachments in the Adobe Portable Document Format (pdf) by December 16, 2016, to:

Professor Patty Born
Secretary of the Risk Theory Society
Department of Risk Management/Insurance, Real Estate and Legal Studies
College of Business
Florida State University
E-mail: pborn@business.fsu.edu

For more information, contact Patty Born or visit the Risk Theory web site at <http://aira.org/rts>. For details regarding local arrangements for the 2017 Seminar, please visit the web site or contact Professor Joan Schmit at joan.schmit@wisc.edu.

ASTIN Bulletin: The Journal of the International Actuarial Association

NOTES FOR CONTRIBUTORS

AIMS AND SCOPE

ASTIN Bulletin was founded in 1958 as a journal providing an outlet for actuarial studies in non-life insurance. In the late 1980's the journal extended its scope to encompass the study of financial risk in insurance (AFIR). In 2007 the journal was established as the journal of the International Actuarial Association (IAA) and encompasses all of the scientific sections of the IAA.

ASTIN Bulletin publishes papers that are relevant to any branch of actuarial science and insurance mathematics. Papers should be quantitative and scientific in nature, and might draw on theory and methods developed in any branch of the mathematical sciences including actuarial mathematics, statistics, probability, financial mathematics and econometrics.

The journal welcomes papers that present significant and original theoretical developments and papers that present significant and original applications of mathematical, statistical or econometric theory to problems arising in insurance, pensions and finance. We especially welcome papers opening up new areas of interest to the international actuarial profession as well as papers that describe open problems that have arisen in practice.

SUBMISSIONS

Papers for possible publication in the *ASTIN Bulletin* – The Journal of the International Actuarial Association should be submitted online at: <http://mc.manuscriptcentral.com/astin>. Submission of a paper is held to imply that it contains original unpublished work and is not being submitted for publication elsewhere. Receipt of the paper will be confirmed and followed by a refereeing process which will be handled by one of the editors. The editors aim to complete the refereeing of a submission in around three months. The role of a referee is to assess the quality of the academic content of the paper. If a paper is sufficiently badly written to an extent that prevents a referee from forming a proper view of the paper's scientific content, then the paper will be returned to the author unrefereed.

TEXT AND MANUSCRIPT PREPARATION REFERENCING

Before a manuscript can be published it must conform to the style of *ASTIN Bulletin*, a summary of the key points of which is listed below. The comprehensive Notes of Contributors document can be obtained from <http://journals.cambridge.org/asb/contributors>.

- The basic elements of the journal's style have been agreed by the Editors and the publisher and should be clear from checking a recent issue of *ASTIN Bulletin*. If variations are felt necessary, this should be discussed with the editor handling the paper.
- Papers should be written in English or French. It is not the job of the editors, the referees or the publisher to improve the use of English or French in the paper; it is up to the authors to ensure that the language, spelling and grammar are of a high quality prior to submission.
- Authors intending to submit longer papers (e.g. exceeding 30 pages) are advised to consider splitting their contribution into two or more shorter contributions.
- The first page of each paper should start with the title, the name(s) of the author(s), an abstract and a list of keywords. An institutional affiliation can be placed between the name(s) of the author(s) and the abstract.
- Footnotes should be avoided as far as possible.

AUTHOR AND CONTACT INFORMATION

On the title page, please provide the full name, affiliation, email and postal address of at least one author. Where the family name may be ambiguous (e.g. a double name), please indicate this clearly. For joint authored papers, please indicate the lead corresponding author and provide a contact telephone number.

REFERENCING

References should be arranged alphabetically, and for the same author chronologically. Use a, b, c etc. to separate publications of the same author in the same year. For journal references give author(s), year, title, journal (in italics), volume (in boldface), and pages. For book references give author(s), year, title (in italics), publisher, and city.

ASTIN Bulletin

Volume 46

Issue 3

CONTENTS

Articles

- A credibility approach for combining likelihoods of generalized linear models
MARCUS C. CHRISTIANSEN AND EDO SCHINZINGER 531
- Equitable retirement income tontines: Mixing cohorts without discriminating
MOSHE A. MILEVSKY AND THOMAS S. SALISBURY 571
- Optimal asset allocation in life insurance: The impact of regulation
AN CHEN AND PETER HIEBER 605
- How accurately does 70% final employment earnings replacement measure retirement income (in)adequacy? Introducing the living standards replacement rate (LSRR)
BONNIE-JEANNE MACDONALD, LARS OSBERG AND KEVIN D. MOORE 627
- Guarantee valuation in notional defined contribution pension systems
JENNIFER ALONSO-GARCÍA AND PIERRE DEVOLDER 677
- On the interface between optimal periodic and continuous dividend strategies in the presence of transaction costs
BENJAMIN AVANZI, VINCENT TU AND BERNARD WONG 709
- Robust stability, stabilisation and H-infinity control for premium-reserve models in a markovian regime switching discrete-time framework
LIN YANG, ATHANASIOS A. PANTELOUS AND HIRBOD ASSA 747
- Efficient estimation of Erlang mixtures using iSCAD penalty with insurance application
CUIHONG YIN AND X. SHELDON LIN 779
- Simple continuity inequalities for ruin probability in the classical risk model
EVGUENI GORDIENKO AND PATRICIA VÁZQUEZ-ORTEGA 801
- Optimal Reinsurance from the Perspectives of Both an Insurer and a Reinsurer
JUN CAI, CHRISTIANE LEMIEUX AND FANGDA LIU 815