

# ASTIN NEWSLETTER

April-June 2023 | ASTIN, the Non-Life Section of the International Actuarial Association

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Dear members,

Welcome to the April-June 2023 edition of ASTIN Newsletter. This is a general update of ASTIN activities over the past three months as well as its future planned activities.

## Elections

The ASTIN Board is responsible for the ASTIN operations, activities, and expenditures. The Board is a very active and engaged body, and every member of the Board is expected to have hands-on leadership and involvement in at least one ASTIN initiative, in addition to participating in monthly teleconferences of the Board and participating in ASTIN activities throughout the year.

The ASTIN Board is composed of sixteen (16) members, fourteen of whom are elected by the ASTIN members, and two of whom are Delegates appointed by the International Actuarial Association. Bob Conger (USA) and Bill Weiland (Canada) currently serve as the IAA Delegates. The ASTIN election takes place annually during the first half of the calendar year (typically May-June, as was the case this year).

New Board members typically are elected for a term of four (4) years (and may be re-elected to a second term). Six (6) elected Board members are in their midst of their elected terms and will continue to serve on the Board until the year indicated below:

1. Axel Wolfstein (2024) Germany
2. Miyuki Ebisaki (2024) Japan
3. Eric Dal Moro (2025) Switzerland
4. Brian Fannin (2025) USA
5. Sarah Kæstel-Bjerg (2025) Denmark
6. Ronald Richman (2025) South Africa

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Therefore, we had eight open positions on the Board to fill in this year's election. This unusually large number of openings is a result of a significant increase in the size of the Board in 2019, at which time eight individuals were elected to four-year terms (i.e., ending in 2023).

Ideally, three or four Board positions would be filled at each annual election, thus producing a gradual turnover of the Board, and fostering institutional memory. In order to help smooth the rotation of Board term expiration dates (and as permitted by ASTIN Rule 9d), this year's election notice specified that half of the members elected or re-elected in June 2023 (the top vote getters) would be elected to four-year terms ending in 2027; the remainder of those elected (or re-elected) in June 2023 would be elected to three-year terms ending in 2026.

There was no limit to the number of candidates who could be nominated for election (or re-election) to the Board this year. Candidates must be Ordinary Members of ASTIN and were required to submit a statement (maximum of one page) describing their background and why they would be a good choice to serve as an ASTIN Board member; candidates also were invited (but not required) to submit a letter of support from their member association. An invitation for candidates was issued on March 1, 2023, and a strong show of interest produced nine candidates for the eight available seats; three of the candidates were current Board members running for re-election.

Candidates were announced, and the election ballots were distributed on May 17 to all Ordinary Members of ASTIN; and included links to supporting information. Voting closed on June 15. All voting was conducted electronically, as permitted by ASTIN Rules, and has been done in each of the past several years.

74 Ordinary Members (out of 1283) voted, a participation rate of 5.8%, up from 4.8% last year. Voters from 25 countries participated (28 in 2022). The countries with the largest number of votes cast were USA, Germany, Norway, Japan, and Switzerland.

The following individuals have been elected to the ASTIN Board:

- 4-year terms ending in 2027: Warda Hadaoui (Norway), Norbert Haible (Luxembourg), Cristina Mano (Brazil), Bernard Wong (Australia)
- 3-year terms ending in 2026: Jose Maria Agurcia (Panama), Eberhard Müller (Portugal), Dimitri Semenovich (Australia), Peng Shi (USA)

The 14 elected Board members serving in 2023-24 are rather diverse:

- 12 different countries spanning Europe; North, Central and South America; Australia; Asia; and Africa.
- 6 Board members continuing current terms, 3 re-elected Board members, and 5 newly elected Board members.
- All Board members have served ASTIN as volunteers in various capacities – including writing papers and making presentations, research, committee / working party leadership and service, Board service, and Officer roles.
- Employment includes: Insurance company, insuretech, reinsurance company, consulting, academic, research, and actuarial association.
- 10 male, 4 female

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The Board itself will elect the 2023-24 Officers (Chair, Vice Chair, Secretary, Treasurer) in the near future.

In addition to the election of Board members, the ballot called for approval of the Minutes of the prior AGM. The Minutes of the June 2022 AGM were approved by 91.3% in favour, 0.0% opposed, 8.7% abstaining. A simple majority was required.

## ICA Recap

ICA2023 was held in Sydney from May 28th to June 2nd, 2023. It began with a performance by Aboriginal artists, showcasing the essence of Australia. The remarkable speech by Dame Inga Beale, former CEO of Lloyd's, captivated the audience.

The conference covered a wide range of topics, including climate change, insurance and society, AI, machine learning, stakeholder trust, resilience amidst the pandemic, insurance pricing, reserving, cyber risk, modelling, and the broader insurance market. These presentations sparked enthusiastic discussions among attendees. Furthermore, the results of the ASTIN Working Party's "Loss Modelling from First Principles - Report from the ASTIN Working Party" were presented by the leaders Pietro Parodi and Derek Thrumble. This paper was awarded the distinction of ICA 2023's most Outstanding paper in field of Non-Life/General Insurance/Property-Casualty.

The event concluded with talks on risk management by the CEO brothers of Qantas Airways, renowned for their commitment to safety, and a panel discussion titled "The Impact of Asia's Ascent on Global Financial Services."

ASTIN distributed their annual report at the IAA booth, along with QR code cards for instant access to the annual report and masterclass website, attracting many people to engage with ASTIN's activities.

It was a wonderful five-day event where actuaries gathered, exchanged ideas, and strengthened connections in the beautiful harbour city of Sydney.

## Future Colloquia



The Institute of Actuaries in Belgium (IA|BE) is organizing the very first Joint Colloquium of all IAA Sections (ASTIN, AFIR-ERM, IACA, IAALS, IAAHS and PBSS) which will be held in the centre of Brussels from 22 to 26 September 2024.

This first "JoCo2024" will gather actuaries, section members as well as members

of Actuaire du Monde (AdM) around a unique theme "Reconnecting Actuaries":

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- Reconnecting actuaries after a pandemic period that changed the ways they work and meet.
- Reconnecting actuaries from interconnected areas of interest to the current and future challenges of the profession.
- Reconnecting actuaries around the same objectives: meet, exchange, learn, discover ... and enjoy!

The JoCo2024 website has been opened where you can watch a teaser video. Please also register to stay up to the date on the event.

- Website URL: <https://www.joco2024.org/>
- Video link: <https://youtu.be/7csjs8ru1wg>

## Hachemeister Prize



The Hachemeister Prize was established in 1993 in recognition of Charles A. Hachemeister's many contributions to ASTIN, and his efforts to establish a closer relationship between ASTIN and the CAS. In honour of Charles Hachemeister's passion for connecting ASTIN's primarily European-based membership to challenges faced by CAS members in North America, emphasis in selecting the prize-winning paper will be placed on the paper's impact for North American actuaries and practicality of application. The Prize is awarded annually to ASTIN Bulletin, ASTIN Colloquium or AFIR Colloquium paper(s).

The 2023 Hachemeister Prize has been awarded to the paper "[Ensemble distributional forecasting for insurance loss reserving](#)". The prize committee believes this paper is impactful and valuable for actuaries to read for the following reasons:

- Impact: The committee believes that the proposed method can produce more accurate reserving results than any single method currently prevalent in the industry, and that it may help in reducing modelling uncertainties. Furthermore, the committee believes that the method may be conceptually extended to encourage further research on the topic of ensemble modelling as applicable in other actuarial topics.
- Practicality: The committee believes that the proposed method is conceptually appealing, appears implementable in practice, and is well-tested using well-constructed synthetic datasets. The committee also believes that the results are likely no more opaque to actuaries than what is typically seen in ensemble methods.
- Originality: The committee believes this paper fills a void in the currently available literature by proposing an objective way of combining different reserving models.

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- Readability: The committee believes that the paper is structured in a logical manner and clearly breaks down the steps and data structures that are imperative for understanding the methodology.
- Completeness: The paper provides a complete and thorough reference document and links to all datasets and codes used.

Note that this is the second time that both Benjamin Avanzi and Bernard Wong have been awarded the Hachemeister prize.

## Working Party Update

The working party has concluded its research with the final report on Loss Modelling from First Principles. The work explores the extent to which loss models can be derived from first principles.

- For modelling frequencies, the report shows how reasoning from first principles naturally leads to non-stationary Poisson processes, Lévy processes, and multivariate Bernoulli processes depending on the context. It views loss count processes as examples of jump processes, which are required depending on whether the stationarity and (or) independence of events in the Poisson process are compromised.
- For modelling severities, the work builds on results from the paper by Parodi & Watson (2019) to show how the graph (network) theory can be used to model property-like losses and further deal with business interruption/supply chain risks by considering networks with higher-order dependencies. The report identifies the limitations of traditional models for liability business by further studying the derivation of severity curves in cases where either compensation tables or case law and the courts drive the compensation. The underlying random growth processes – especially in the context of casualty (liability) insurance, can explain the ubiquitous presence of the Pareto behaviour for large losses.

The report concludes that the graph (network) theory appears to be a natural choice to model losses of properties that can be broken down into different components connected to one another.

Although the research is of a foundational nature, its results may help practitioners select the model and elucidate the relationship between the risk features and the model parameters. While the focus of the working party was on the conceptual framework, the research has produced, along the way, other observations of immediate practical relevance.

The ASTIN Working Party Report on Loss Modelling from First Principles consists of 11 sections reflecting in-depth research from the AWP composed of Pietro Parodi (Chair), Derek Thrumble, Peter Watson, Zhongmei Ji, Alex Wang, Ishita Bhatia, Joseph Lees, Sophia Mealy, Rushabh Shah, Param Dharamshi, and Federica Gazzelloni.

As noted above in our ICA recap, this paper was awarded the distinction of ICA 2023's most Outstanding paper in field of Non-Life/General Insurance/Property-Casualty

## ASTIN Reading Club



The June meeting of the ASTIN reading club looked at representation learning and the non-life insurance industry. Representation learning is at the heart of recent advances in artificial intelligence and can be defined as the ability for predictive models to transform data automatically into the most suitable form for a prediction task. Recent papers applying deep learning within actuarial science have used conventional forms of representation learning, as well as innovated new methods suitable for actuarial purposes. In the next edition of the ASTIN Reading Club, we will be reviewing these papers with the aim of providing an overview of this exciting new development in actuarial methodology.

Some of the proposed papers and talks for this next session are:

- Intro - Semenovich, D. (2023) The path to GPT-4. Unpublished.
- DeLong, L., & Kozak, A. (2023). The use of autoencoders for training neural networks with mixed categorical and numerical features. *ASTIN Bulletin*, 53 (2), 213{232.
- Blier-Wong, C., Cossette, H., Lamontagne, L., & Marceau, E. (2022). Geographic ratemaking with spatial embeddings. *ASTIN Bulletin: The Journal of the IAA*, 52(1), 1-31.
- Avanzi, B., Taylor, G., Wang, M., & Wong, B. (2023). Machine Learning with High-Cardinality Categorical Features in Actuarial Applications. arXiv preprint arXiv:2301.12710.
- Bavo D. C. Campo & Katrien Antonio (2023) Insurance pricing with hierarchically structured data an illustration with a workers' compensation insurance portfolio, *Scandinavian Actuarial Journal*, DOI: 10.1080/03461238.2022.2161413
- Campo, B. D., & Antonio, K. (2023). On clustering levels of a hierarchical categorical risk factor. arXiv preprint arXiv:2304.09046.
- Richman, R., & Wüthrich, M. (2023). Smoothness and monotonicity constraints for neural networks using ICEnet. arXiv preprint arXiv:2305.08807.

## ASTIN Masterclasses

The ASTIN Board reminds members of its recently launched 2nd Masterclass, featuring Michael Powers teaching *The Insurance-Risk Landscape: An Eclectic Survey*.

### *What are ASTIN Masterclasses?*

ASTIN Masterclasses is a series of online masterclasses on a wide range of non-life insurance topics taught by the greatest minds of the actuarial profession and renowned authorities on risk and insurance. They are fully interactive covering topics from such key areas of interest as financial stability and enterprise risk management, regulatory changes, data science and artificial

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intelligence in insurance, climate change and catastrophe risk, cyber risk, and InsurTech and disruptive technologies.

#### *Are they designed for me?*

Our Masterclasses are designed for risk and actuarial professionals, ranging from analysts to C-suite executives, of any level/experience.

#### *How much do I pay for it?*

Nothing, as ASTIN members get free access! Just login with your normal ASTIN website account to access the video content.

You can now access this new 10-part series of this new Masterclass, including our trailer video by clicking below. You can also access the previously released 8-part series by Andrew Smith on Model Risk Management.

#### *The Insurance-Risk Landscape: An Eclectic Survey by Michael Powers*

“The Insurance-Risk Landscape: An Eclectic Survey” is a Masterclass video series written and narrated by Professor Michael R. Powers of Tsinghua University. Through a collection of ten engaging sessions, Professor Powers navigates the metaphorical landscape formed by the many manifestations of insurance risk — from natural and human-made perils to insurance company insolvency. Along the way, he stops to explore some of the most intriguing twists and turns in the landscape, with an ability to make the complex simple, and the simple profound. The eclectic choice of topics includes:

- the origins of insurance, with relevant insights for today’s markets;
- the roles of randomness, complexity, and uncertainty in generating losses;
- rationales for the most commonly used frequency and severity distributions;
- the interplay between hedging and diversification in risk finance;
- explanations (and common misconceptions) of insurability and underwriting criteria;
- the meaning and implications of heavy-tailed losses;
- the nature of the property-liability underwriting “cycle”;
- the opposing effects of advancing technologies on insurance markets.

#### *Episodes:*

- The Many Meanings of Risk (10:31)
- Insurance and Human Society (15:04)
- The Nature and Origin of Insurance Losses (23:17)
- Bayesian Methods in Insurance (16:16)
- Modelling Insurance Losses – Distributions and Parameters (19:27)
- Modelling Insurance Losses – Distributions Versatility (19:04)
- Financing Insurance Losses (15:14)
- Heavy Tails – Underwriting and Solvency (16:35)
- Heavy Tails – Expected Utility and Risk Measures (24:12)
- Winds and Waves of the Future (18:07)

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## ASTIN Webinars

After a rather active first quarter and setting aside time for the ICA, ASTIN hosted one webinar in the second quarter of 2023.

- On 13<sup>th</sup> June, Christian Robert presented “Tail index partition-based rules extraction with application to tornado damage insurance”.

After a light second quarter, we will look to a busier schedule for webinars ahead. Currently being finalized are:

- “Measuring non-exchangeable tail dependence using tail copulas” by Takaaike Koike
- “Premium control with reinforcement learning” by Lina Palmborg
- “The use of autoencoders for training neural networks with mixed categorical and numerical features” by Łukasz Delong

For information about future ASTIN webinars please refer to the [‘Our Activities’](#) page on the ASTIN website. If you are interested in proposing a webinar, please contact [Brian Fannin](#).



## Forthcoming Events

### ASTIN Colloquia

**2024 – 22-26 September - Brussels, Belgium**

Event website: [www.joco2024.org](http://www.joco2024.org) with mailing list subscription



**2025 – 18-21 May - São Paulo, Brazil**

Hosted by Faculdades Metropolitanas Unidas



**2026 – November 8-13 - Tokyo, Japan**

ASTIN Colloquium will be held as part of 33<sup>rd</sup> ICA.

Event website: [ica2026.org](http://ica2026.org) with mailing list subscription



## Resources

Don't forget the following resources which have a lot of information about ASTIN, and its research:

[ASTIN Annual Report](#) | [ASTIN Bulletin](#) | [ASTIN Video](#) | [ASTIN Newsletters](#) | [ASTIN website](#)

Also, please follow us on social media: [LinkedIn](#), [Twitter](#) and [Facebook](#).

## Contacts

Key contacts on the ASTIN Board

- [Eric Dal Moro](#) [Chairman]
- [Axel Wolfstein](#) [Secretary]

Commented [CL1]: Not sure that this info is relevant to ASTIN members so would suggest removing it.