# BOOK REVIEWS

Hartmut MILBRODT, Manfred HELBIG (1999): *Mathematische Methoden der Personenversicherung*. de Gruyter. IBSN 3-11-014226-0

The book "Mathematische Methoden der Personenversicherung" by Hartmut Milbrodt and Manfred Helbig is a major textbook about life insurance mathematics and has the ambitious aim to cover a large part of the classic and modern life insurance mathematics in German. It is aimed at actuarial students, life insurance professionals and at research fellows.

In order to reach this aim, the monograph has over 600 pages and 13 chapters:

- Versicherungsmathematik: Teil der Versicherungswissenschaft
- Elementare Finanzmathematik: Der Zins als Rechnungsgrundlage
- Ausscheideordnungen in der Lebensversicherung
- Stochastische Prozesse in der Personenversicherung
- Versicherungsleistungen in der Lebensversicherung
- Versicherungsleistungen in der allgemeinen Personenversicherung
- Berechnung erwarteter Barwerte spezieller Versicherungsleistungen mittels Kommuationszahlen
- Prämien
- Das Deckungskapital einer Versicherung eines unter einem einzigen Risiko stehenden Lebens
- Das Deckungskapital in der allgemeinen Personenversicherung
- Überschuss und Überschussanalyse in der Lebensversicherung
- Mathematischer Anhang.

From the above table of contents, it is seen that this book covers a large amount of things an actuary in a life insurance has to know such as commutation functions, smoothing of moralities, bonus schemes and multi-state model for life insurance. From this point of view, the book is necessary for each library. A particular highlight of this book is the treatment of markov models in life insurance in a very general way. The theory is as well illustrated by practical examples. On the other hand, the book is rather long and not as concise as for example "Life insurance mathematics" by Hans Gerber.

One reason for being so long stems from the aim of the authors to present all theorems in the most general framework. Therefore the definitions, propositions and theorems become rather involved and it is possible get lost. The exercises are either very theoretical (mathematical) or bound to earth and so there is something for every type of reader. The solutions are unfortunately missing.

On the other hand, this book is unique because it tries to present the traditional and the modern life insurance mathematics within one book and therefore I think that is in particular helpful for people who want to know both types of life insurance mathematics.

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