Obituary: **PETER FRANKEN 1937–1989**

With great sorrow we have to announce that

Prof. Dr. rer. nat. habil. Peter Franken

died on 4 December 1989 after a long illness.

Peter Franken was born in Moscow on 29 May 1937 as the son of German emigrants. He lived in the USSR until 1955 and then he moved with his mother to the German Democratic Republic, where he took up his studies of mathematics at Humboldt University in that year.

After he had received his diploma he undertook postgraduate studies in Moscow during 1960–61. During this period he established an extraordinarily deep and fruitful relationship with numerous leading Soviet mathematicians. In the following years he worked at the Economic Research Institute of the State Commission for Economic Planning and Control of the GDR.

After obtaining his qualification for a lectureship at the Friedrich-Schiller-University of Jena with a thesis in the field of queueing systems theory in 1970 he received a call to the Humboldt University as a titular professor and, in 1972, as an ordinary professor.

The emphasis of his scientific work was on queueing and reliability theory. His most significant contribution to the further development of mathematics was the application of the theory of point processes to queueing and reliability theory. He always attached great importance to a close relation between basic research and practical applications and thus established an intensive cooperation with partners from industry much earlier than was common in the GDR.

During recent years he experienced a stormy renaissance of his original field of research, which was initiated by developments in high technology and informatics. Together with his research group he responded assertively to the growing demands and developed far-reaching scientific plans.

Peter Franken belonged to the group of leading international scientists in the field of queueing and reliability theory. In addition to his scientific work, he distinguished himself by his great efforts in education. Among his talented pupils were Klaus Arndt, Andreas Brandt, Bernhard Gerlach, Gunter Last and Bernd Lisek.

Peter Franken enjoyed a great esteem among his colleagues and had close personal contacts with his collaborators. A Festschrift had been presented to him in May 1987 to honour him on his 50th birthday, and his death leaves a grievous gap.

MATHEMATICS SECTION
HUMBOLDT UNIVERSITY

PETER FRANKEN, 1937–1989

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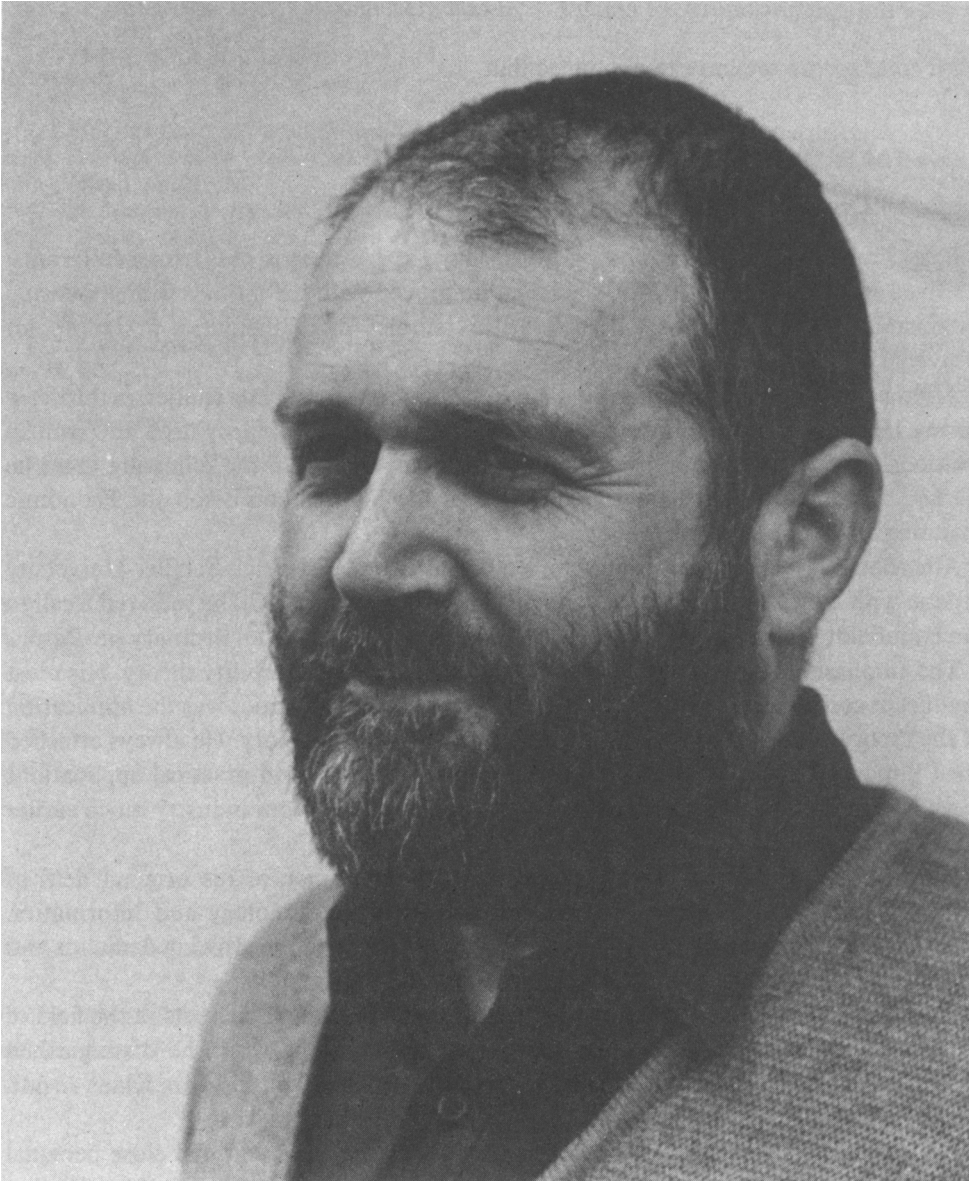
List of publications

I. MONOGRAPHS

1. (with J. Bellach, E. Warmuth and W. Warmuth) *Mass. Integral, Bedingter Erwartungswert*. WTB, Akademie-Verlag, Berlin, 1978.

2. (with D. König, U. Arndt and V. Schmidt) *Queues and Point Processes*. Akademie-Verlag, Berlin, 1981; Wiley, Brisbane, 1982. Russian edition: Nauka Dumka, Kiev, 1984.

3. (with F. Beichelt) *Zuverlässigkeit und Instandhaltung*. Verlag Technik, Berlin; Carl-Hanser-Verlag, München, 1984. Russian edition (revised): Radio i Švyaz, Moscow, 1988.

4. (with A. Brandt and B. Lisek) *Stationary Stochastic Models*. Akademie-Verlag, Berlin; Wiley, New York, 1990.

II. TRANSLATIONS INTO GERMAN

1. W. J. Rosenberg and A. I. Prochorow, *Einführung in die Bedienungstheorie*. B. G. Teubner Verlagsgesellschaft, Leipzig, 1964.

2. B. W. Gnedenko, J. K. Beljajew and A. S. Solowjow, *Mathematische Methoden der Zuverlässigkeitstheorie* I, II. Akademie-Verlag, Berlin, 1968.

3. J. S. Wenzel and L. A. Owtscharow, *Wahrscheinlichkeitstheorie*. Akademie-Verlag, Berlin, 1972.

4. A. A. Borowkow, *Lehrbuch der Wahrscheinlichkeitstheorie*. Akademie-Verlag, Berlin, 1976.

5. R. E. Barlow and F. Proschan *Zuverlässigkeit und Lebensdauerprüfungen*. Akademie-Verlag, Berlin, 1978.

III. PAPERS

1. Sharpening of a limit theorem for the superposition of independent renewal processes. *Teor. verojatn. i. prim.* **8** (1963), 341–349 (in Russian with German summary).

2. Approximation durch Poissonsche Prozesse. *Math. Nachr.* **26** (1963), 101–114.

3. Approximation der Verteilungen von Summen unabhängiger nichtnegativer ganzzahliger Zufallsgrössen durch Poissonsche Verteilungen. *Math. Nachr.* **27** (1964), 303–340.

4. Zur Approximation durch Poissonsche Verteilungen. *Abh. Dtsch. Akad. Wiss.* **4** (1964), 59–61.

5. Zur Theorie des Überlaufverkehrs. *Monatsb. Dtsch. Akad. Wiss.* **7** (1965), 321–323.

6. Asymptotische Untersuchung des Überlaufverkehrs. *Wiss. Z. Friedrich-Schiller-Universität* **14** (1965), 235–245.

7. (with G. Richter) Über eine Klasse von zufälligen Punktfolgen. *Wiss. Z. Friedrich-Schiller-Universität* **14** (1965), 247–249.

8. (with A. Liemant and K. Matthes) Stationäre zufällige Punktfolgen III. *Jber. Deutsch. Math.-Verein* **67** (1965), 183–202.

9. Zur Theorie des Überlaufverkehrs. *Elektron. Informationsverarbeit. Kybernetik*. **2** (1966), 223–233.

10. Erlangsche Formeln für semimarkowschen Eingang. *Elektron. Informationsverarbeit. Kybernetik*. **4** (1968), 197–204.

11. (with J. Kerstan) Bedienungssysteme mit unendlich vielen Bedienungsapparaten. *Operationsforsch. Math. Statistik* **1** (1968), 67–76.

12. (with D. König and K. Matthes) Bedienungstheorie. *Taschenbuch der Elektronik* Bd **3** (1969), 72–94.

13. Ein Stetigkeitssatz für Verlustsysteme. *Operationsforsch. Math. Statist*. **2** (1970), 9–23.

14. (with four coauthors) Erfahrungen und Probleme bei der Nutzung mathematisch-statistischer Verfahren für die mittel- und langfristige Planung. *Wirtschaftswissenschaften* **1** (1974), 58–75.

15. (with D. Stoyan) Stabilitätssätze für eine Klasse homogener Markowscher Prozesse. *Math. Nachr*. **61** (1974), 311–316.

16. Stationary probabilities of states of queueing systems at different times. *Izv. Akad. Nauk SSSR Tehn. Kibernet*. **1** (1975), 101–107 (in Russian). English translation: *Engrg. Cybernet*. **13** (1975), 84–89.

17. (with D. Stoyan) Einige Bemerkungen über monotone und vergleichbare Markowsche Prozesse. *Math. Nachr*. **66** (1975), 201–209.

18. (with D. Stoyan) Stability, monotonicity and extremality of solutions to problems in queueing and reliability theory. *Tehn. Kibernet*. **3** (1975), 89–102 (in Russian).

19. Abschätzungen für Zuverlässigkeitskenngrössen redundanter Systeme mit Reparaturen. Materialen des Koll. über numerische Probleme und stochastische Prozesse, IHS, Wismar, 1975.

20. Einige Anwendungen der Theorie zufälliger Punktprozesse in der Bedienungstheorie I. *Math. Nachr*. **70** (1976), 303–319.

21. (with D. König) Some basic notions and results of the theory of point processes. *Contributions to the 3rd USSR Congress on Queueing Theory* **2** (1976), 81–95 (in Russian).

22. (with D. Stoyan) Half-order relations for distribution laws and their application to queueing and reliability theory. *Contributions to the 3rd USSR Congress on Queueing Theory* **2** (1976), 165–184 (in Russian).

23. Invariance relations for queueing systems in stochastic equilibrium. *Contributions to the 3rd USSR Congress on Queueing Theory* **2** (1976), 149–164 (in Russian).

24. (with K. Heuser) Estimates of the indices of reliability for redundant systems with renewal. *Izv. Akad. Nauk SSSR Tehn. Kibernet*. **4** (1977), 100–105 (in Russian).

25. (with K. Arndt) Some applications of random point processes to availability analysis of redundant systems with repair. *IEEE Trans. Reliability* **26** (1977), 266–269.

26. (with B.-M. Kirstein and D. Stoyan) Comparability and monotonicity of Markov processes. *Teor. verojatn. i. prim*. **22** (1977), 43–54 (in Russian with English summary).

27. (with B.-M. Kirstein) Zur Vergleichbarkeit zufälliger Prozesse. *Math. Nachr.* **78** (1977), 197–205.

28. A remark on the stationary availability. *Math. Operationsforsch. Statistik Ser. Optimization.* **9** (1978), 143–144.

29. (with A. Streller) A general method for calculation of stationary interval reliability of complex systems. *Elektron. Informationsverarbeit. Kybernetik* **14** (1978), 283–290.

30. (with U. Kalähne) Existence, uniqueness and continuity of stationary distributions for systems without delay. *Math. Nachr.* **86** (1978), 97–115.

31. (with U. Arndt) Continuity of generalized regressive processes. *Izv. Akad. Nauk SSSR Tehn. Kibernet.* **6** (1979), 94–97 (in Russian).

32. (with K. Arndt) Construction of a class of stationary processes with an application in reliability. *Zast. Mat.* **16** (1979), 379–393.

33. (with A. Streller) Stationary generalized regenerative processes. *Teor. verojatn. i. prim.* **24** (1979), 78–90 (in Russian with English summary).

34. (with A. Streller) Ein Berechnungsverfahren für die stationäre Intervallzuverlässigkeit komplexer Systeme mit Reparaturen. *Wiss. Z. IHS Wismar* **3** (1980), 19–23.

35. (with A. Streller) Reliability analysis of complex repairable systems by means of marked point processes. *J. Appl. Prob.* **17** (1980), 154–167.

36. (with D. König and V. Schmidt) On time-dependent and stationary queue length characteristics. *Elektron. Informationsverarbeit. Kybernetik* **16** (1980), 463–466.

37. The point process approach in queueing theory and related topics. Humbolt-Universität Berlin, Sektion Mathematik, Seminarbericht No. 43 (1982).

38. (with B. Lisek) On Wald's identity for dependent variables. *Z. Wahrscheinlichkeitsth.* **60** (1982), 143–150.

39. (with B.-M. Kirstein and A. Streller) Reliability analysis of complex systems with repair. *Elektron. Informationsverarbeit. Kybernetik* **20** (1984), 409–422.

40. (with A. Brandt and B. Lisek) Ergodicity and steady state existence. Continuity of stationary distributions of queueing characteristics. *Proc. Internat. Sem. Modelling and Performance Evaluation Methodology, INRIA, Paris.* Lecture Notes in Control and Information Sciences **60**; Springer-Verlag, Berlin (1984), 275–296.

41. (with A. Streller) Stochastic processes with an embedded point process with applications to reliability theory. *Proc. Internat. Sem. Semimarkov Processes, Brussels* (1984), 253–282.

42. (with A. Brandt and B. Lisek) Stationary queueing systems. Existence and stability. Kurzfassung eines Hauptvortrags. *Proc. 1st Bernoulli Congress, Tashkent* (1988).