

# Dr. Peter Koeze

**Education** Peter Koeze received his vocational education at the Delft University of Technology in the Netherlands, taking a master's degree in Physical Engineering in 1965. Subsequently, he attended the University of Utrecht in the Netherlands to pursue research on Solid-State Physics. The research led to a few publications and a thesis which earned him a PhD. degree in Physics in 1968. A decade later, to supplement his education, he took up Psychology, also at the University of Utrecht, receiving a BSc. degree (cum laude) in 1980.

**Early career** In 1968 Dr. Koeze joined the Royal Dutch Shell Group of Companies. As a geophysicist, he was assigned to various Shell companies in London and Brunei, and travelled the Far East from Malaysia to Japan on board a seismic ship. In 1972 he was engaged for one year as a consultant by the Centre for Industrial Development in Rotterdam, The Netherlands. The following year, at the request of the Foundation for Fundamental Research of Matter FOM in Utrecht, he made a survey of the Physics community in the Netherlands. Among other things, he developed a mathematical model of the mobility of scientists.

**Principal occupation** De Nederlandsche Bank, the Central Bank of the Netherlands, engaged Dr. Koeze in 1974. Under his leadership, during more than thirty years, a team of five engineering graduates undertook the development of highly automated, easy to operate, secure banknote sorting machines and the modernisation of the technical and artistic design of Netherlands banknotes.

They developed, assisted by outside contractors, a set of electronic sensors to discriminate counterfeits from genuine banknotes and worn banknotes from those fit for recirculation. As the sorting machines recorded the numbers as well as the physical state of all banknotes passed through, it was possible to compile a complete database of the notes in circulation and those withdrawn. The database was used for counterfeit detection in the first place, but as a by-product it made circulation trials feasible to test various banknote papers and coatings. From the circulation trials Dr. Koeze was able to prove that Gresham's Law does not apply to banknotes.

Other innovations the team introduced were a variable bar code for machine-readable banknote numbers, the electronic sensor necessary to read the bar-coded numbers on banknotes moving at high speed, and improved tactile marks for the benefit of the visually impaired. Proof of their success was the low level of counterfeit Netherlands banknotes in circulation and

the fact that counterfeit notes that were circulating despite all efforts to the contrary could be captured swiftly, mostly within a few days after their initial abuse.

Public opinion about the banknotes issued since 1974 was unequivocally positive. The first design of a banknote Dr. Koeze managed was the one bearing the ‘portrait’ of a Snipe, at the time unusual for a banknote. The second with the picture of a Sunflower has recently been nominated for the short-list of twentieth-century Dutch classic designs. The third showing a Lighthouse was the public’s favourite; over ninety per cent rated it as beautiful.

He and the industrial designer in his team effectively organised, in 1987, a competition between six graphic artists for the design of a new banknote series. The winning design drew wide international attention. It broke with tradition in that it bore no dominant portrait or picture but was ornamental in essence. The series was to be the last one denominated in guilders.

In an international context, Dr. Koeze has been a delegate to the European Banknote Printers’ Conference between 1978 and 1998, and chaired its Statistics and Banknote Handling Committee between 1991 and 1996. He served on the Working Group for the Design and Printing of the Euro Banknotes, established by the European Monetary Institute, later under the umbrella of the European Central Bank, from 1992 until 1997.

Over the years, Dr. Koeze wrote numerous articles on banknotes and sorting machines. He is coauthor of the *Catalogue of Dutch Banknotes 1814 - 1997*.

In 2004, after thirty years of great dedication, Dr. Koeze retired from De Nederlandsche Bank.

**Late career** Already in 1970 Dr. Koeze became interested in the workings of the financial world, in particular the stock market. He wondered that every day newspapers published a profusion of data on the financial markets while no scientific theory existed to analyse their significance, to discern possible patterns, let alone to forecast trends. He felt challenged to attempt if he could capture the behaviour of financial markets in mathematical models somehow. Now, after decades of study in his spare time and practice on the stock market, the time may have come to bring the results out into the open. For a start, a summary on the *Analytic Theory of Interest Rates* was published in 2000.

**Memberships of Professional Organisations** Dr. Koeze is a member of the Royal Institute of Engineers, the Netherlands Physical Society and the European Physical Society. He is also a member of Photonics Cluster Netherlands (PCN), formerly the Netherlands Society of Optics & Photonics for which he served as Chair from 1978 through 1984, and the European

Optical Society. He was a nonexecutive member on the Board of the Technology Foundation STW in Utrecht from 1989 until 1998.

**Other interests** Peter's avocations include a penchant for literature and beautiful books. He loves to hold and read books which have been well-produced, have pleasing typography on fine paper, and are perfectly illustrated with original graphics. Over the years he has assembled a sizeable collection of modern literary works published in limited editions.

## Resume

1942 born at Breda, The Netherlands

### Education

1965 MSc. Physical Engineering  
Delft University of Technology, The Netherlands

1968 PhD. Physics  
University of Utrecht, The Netherlands

1980 BSc. Psychology (cum laude)  
University of Utrecht, The Netherlands

### Career History

1965 - 1968 Foundation for Fundamental Research on Matter FOM  
Utrecht, The Netherlands

1968 - 1969 Bataafse Internationale Petroleum Maatschappij  
The Hague, The Netherlands

1969 - 1970 Shell International Petroleum Company, London, U.K.

1970 - 1971 Brunei Shell Company, Seria, Brunei

1972 Centre for Industrial Development  
Rotterdam, The Netherlands

1973 - 1974 Foundation for Fundamental Research on Matter FOM  
Utrecht, The Netherlands

1974 - 2004 De Nederlandsche Bank, Amsterdam, The Netherlands

1976 Deputy head of Banknote Development Department

1977 Head of Banknote Development Department

1990 Adviser to the Governing Board

2004 retired

### Other career-related Functions and Interests

1977 - 2002 Delegate to the Statistics & Banknote Handling Committee  
of the Banknote Printers' Conference, Europe

1991 - 1996 Chair

1978 - 1998 Delegate to the Banknote Printers' Conference, Europe

1992 - 1997 Delegate to the Working Group for the Design and Printing  
of the Euro Banknotes

European Monetary Institute, Basel, Switzerland

European Central Bank, Frankfurt, Germany

1989 - 1998 Member on the Board of the Technology Foundation STW  
Utrecht, The Netherlands

1979 - today Mathematical Modelling of Finance

### **Memberships of Professional Organisations**

Royal Institute of Engineers

Netherlands Physical Society

1974 - 2004 Member of the Committee on Employment

Photonics Cluster Netherlands (PCN),

formerly Netherlands Society of Optics & Photonics

1978 - 1984 Chair

European Physical Society

European Optical Society

Society for Advancement of Physics, Medicine and Surgery (since 1790)

### **Other Interests**

1970 - today Investing on a scientific basis

Modern literary books, well-designed, printed in limited editions

Calligraphy, typography, and design

**Publications** See <http://www.pkoeze.nl/ListOfPublications.pdf>