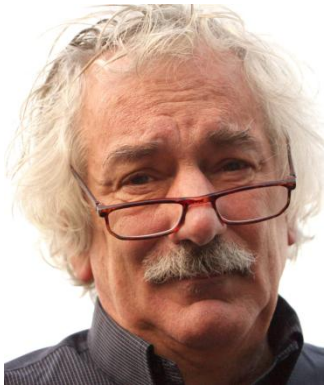
Prof. Roger Cooke TU Delft and Resources for the Future



Roger Cooke received his bachelors degree (1968, Phi Beta Kappa, magna cum laude) and PhD (1975) from Yale University in mathematics and philosophy. From 1975-2005 he worked in the Netherlands as assistant professor in logic and philosophy of science at the University of Amsterdam, later as professor of Applied Decision Theory in the Department of Mathematics at the Delft University of Technology. In 2005 he moved back to the USA as senior fellow at Resources for the Future. In 2006-8 he supervised the development of non-parametric continuous-discrete Bayesian Belief Nets for the Dutch Ministry of Transport. Subsequent development was under contract with Shell, AIRBUS and the National Institute for Aerospace. In 2008 he was elected fellow of the Society for Risk Analysis. His short course on Expert Judgment has been given several times at NASA Langley and NASA Headquarters. In 2010 he was named lead author in the 5th assessment of the Intergovernmental Panel on Climate Change for the chapter on Risk and Uncertainty. In 2011 he received the Lifetime Distinguished Achievement Award from the Society for Risk Analysis. In 2013 he accepted a part time appointment at the University of Strathclyde. He currently works on uncertainty quantification in conceptual design for AIRBUS and on value of information of Earth Observation Missions for NASA Langley. He consults for expert judgment studies on invasive species (NOAA), food borne diseases (WHO) and efficacy of public health measures (Robert Wood Johnson, CDDEP) and nitrogen loading in the Chesapeake bay (EPA).

Cooke's early work focused on the foundations of quantum mechanics and probability. Together with Mike Keane and Bill Moran he published an elementary proof of Gleason's theorem, which establishes the non-embedability of quantum magnitudes in any underlying hidden variable theory. Since then he focused on methodological issues of risk analysis, uncertainty analysis and expert judgment, with forays into competing risk, design of reliability data bases, and stochastic processes. His 1991 book Experts in Uncertainty is a standard in the field, establishing a mathematical foundation for quantifying expert uncertainty as subjective probability, and evaluating and combining experts as statistical hypotheses. Many applications followed. Most notably, from 1990 – 1996 he coordinated the expert elicitation, dependence modeling and uncertainty propagation in the integrated uncertainty analysis of accident consequence models for nuclear power plants, undertaken jointly by the US Nuclear Regulatory Commission and the European Union (reports available at http://risk2.ewi.tudelft.nl/research-and-publications/cat_view/71-publications/89-usnrc-eu-uncertainty-analyses). Problems of high dimensional dependence modeling and probabilistic inversion encountered in the nuclear research shaped much of the subsequent research of his mathematics group. His book Probabilistic Risk Analysis (2001 CUP, with Tim Bedford) has been translated into Chinese and Japanese. Uncertainty Analysis with High Dimensional Dependence Modeling (2006, Wiley, with D. Kurowicka) bundles much of that work. An important article in Annals of Statistics (with Tim Bedford, 2001) introduced a graphical approach that is being avidly pursued by the European mathematical finance community (see for example http://wwwold-m4.ma.tum.de/lect-conf/vinesworkshop/presentations.html). He has been interested in uncertainty quantification in climate change since 2008,