

Dedication

W. Kahan



The Proceedings of the 17th Symposium on Computer Arithmetic are dedicated to William M. Kahan for his lifetime contributions to Computational Mathematics, Numerical Analysis, and Standardization of Computer Arithmetic.

William Kahan was born in 1933 in Toronto, Canada. He received a B.S. degree in 1954, M.S. degree in 1956, and Ph.D. in 1958, all from the University of Toronto. He is a professor of mathematics, computer science, and electrical engineering at University of California at Berkeley. In 1989 he received the ACM Turing Award, in 1994 became an ACM Fellow, and in 2005 was elected a foreign associate of the National Academy of Engineering.

Starting out to solve partial differential equations, Prof. Kahan discovered practical problems that could only be resolved at lower and lower levels of his work environment, and by the time of the heyday of the IBM 7094 at Toronto, he had modified the workings of the elementary transcendental function library, the compilers, and the operating system to support numerical computation in an integrated fashion not seen before and seldom since. But the 7094 was soon supplanted by the IBM 360 series. Kahan first began to restore to computer arithmetic the predictability and usefulness of Toronto's 7094, by organizing a collective effort to convince IBM to make 360 multiplication commutative again. A decade of such efforts planted seeds of a better future, which found fertile ground at the dawn of the microprocessor era. New manufacturers, running new software, were willing and motivated to consider how arithmetic might be regularized by standardization.

Prof. Kahan is thus best known as architect of the IEEE 754 Binary Floating-Point Standard which defines how most computers today perform arithmetic. His consulting work and his students have propagated his ideas throughout the industry and extended them to areas of test programs, elementary transcendental functions, linear algebra, and programming environments. Although he has been involved in much higher-level research in computational mathematics, he is still an active key contributor to the current IEEE revision effort 754R, started approximately 20 years after the first 754 standard.