man who shared both of these attributes with unfaltering generosity.

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Kenneth W. Robinson

Kenneth Robinson, a retired theoretical accelerator physicist at the Cambridge Electron Accelerator of Harvard University and MIT, died 11 January in San Diego, California. He was born in San Diego in 1925, took his undergraduate training at Caltech and his graduate work at Princeton. He worked briefly as a Research Engineer at the RCA Laboratories but spent most of his professional life with the CEA in Cambridge. His work was innovative, accurate and highly respected by his colleagues, especially other theoretical scientists. He was known within his small circle of admirers as a person who was always correct in his calculations and predictions.

Robinson published a paper in 1958 in the *Physical Review* on radiation effects in circular electron accelerators, which dealt with radiation damping and quantum excitation of single-particle motion, in which he enunciated for the first time the fundamental result that the sum of the damping rates for the three degrees of freedom is a constant independent of the focussing structure of the guide field and of the geometric arrangement of the radiofrequency accelerating fields. His studies of the coherent interaction between beams and radiofrequency cavities established important criteria for the design and tuning of rf systems. He foresaw, as early as 1956, several applications of wiggler magnets of different designs to the control of beam size as well as to the production of enhanced synchrotron radiation. Possibly the most influential of Robinson's accomplishments was his coinvention, with G.-A. Voss, of the low-beta technique for attaining, with limited stored currents, higher luminosities than has previously been thought feasible in colliding-beam storage rings. That technique—first demonstrated in the CEA Bypass System—has subsequently been used in all colliding-beam storage ring designs.

Robinson was a retiring and modest person and never married. When the CEA closed in 1974 he retired and subsequently had few communications with his former colleagues. However, those of us who knew and respected him feel that he made many important contributions to science in the active years he spent among us. He died of a heart attack in his apartment and burial was arranged by the Public Administrator of San Diego.

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