

Ronald Fuchs

In Memoriam

April 14, 2013



Scanned at the American
Institute of Physics



I would love to believe that when I die I will live again, that some thinking, feeling, remembering part of me will continue. But as much as I want to believe that, and despite the ancient and worldwide cultural traditions that assert an afterlife, I know of nothing to suggest that it is more than wishful thinking. [...]

If there were life after death, I might no matter when I die, satisfy most of [my] deep curiosities and longings. But if death is nothing more than an endless dreamless sleep, this is a forlorn hope. Maybe this perspective has given me a little extra motivation to stay alive.

The world is so exquisite, with so much love and moral depth, that there is no reason to deceive ourselves with pretty stories for which there's little good evidence. Far better, it seems to me, in our vulnerability, is to look Death in the eye and to be grateful every day for the brief but magnificent opportunity that life provides.

- Carl Sagan, Billions and Billions (1957, p. 258)

Ronald Fuchs

January 27, 1932 - November 10, 2012

Ronald Fuchs, beloved husband, father, father-in-law, and grandfather, died November 10, 2012, of plasmacytoma at home with family in Ames, Iowa.

Ron was born January 27, 1932, in Los Angeles, CA, the only child of Swiss-born Ernest Fuchs and Hanna Berta (Herren) Fuchs, and named Ernest Ronald Fuchs. Ron preferred to use Ronald Fuchs.

Ron's life was influenced by the asthma he developed as an infant even though he outgrew it at 16. Intellectual activities predominated. He had more opportunities for independent thinking since he was too sick to go to school half the time. He learned to concentrate in order to forget his body's discomfort. He developed confidence and a "never give up" attitude because of his parents' love and determination that he survive. These characteristics strengthened his natural inclination to approach problems with eagerness rather than fear so he became a problem-solver par excellence!

Ron was interested and gifted in at least two areas - music and physics. Though music remained a constant joy to him throughout his life, he chose physics as a profession. This choice was influenced in part by his science teachers at Eliot Junior High School in Altadena from which he graduated in 1948 and those at John Muir College, Lower Division, Pasadena, from which he received a high school diploma in 1950. The two 1950 science awards he received - selection as a Westinghouse Science Talent Contest finalist and third place in Southern California's Annual Competitive Physics Test - confirmed his choice of a career in physics research.

In the fall of 1950 Ron entered the California Institute of Technology (Caltech) on a full scholarship. He joined the Caltech Glee Club and Throop Club for off-campus residents. He said in 2012 that his years at Caltech were probably the happiest of his life. Everything was easy. Anything he'd read or hear would stick in his mind. This is verified by his election on March 3, 1953 to membership in the California Beta Chapter of Tau Beta Pi, the oldest engineering honor society in the USA, and his graduation with a BS degree with honor from Caltech on June 11, 1954 as top man in his class.

After working at the Jet Propulsion Lab the summer of 1954, Ron began graduate study at the University of Illinois on a National Science Foundation Fellowship. He received his MS in 1955 and his Ph.D in 1957 in Physics from the University of Illinois. Dr. Frederick Seitz was his major professor. He wrote one article based on his Ph. D. thesis that was published in 1958: "Theory of the Beta Band in Alkali Halide Crystals," Phys. Rev. III. 387.

Ron was extremely disappointed to learn that in his later years Dr. Seitz became a spokesman for tobacco interests and a supporter of those who denied man's influence on climate change.

In 1957-8 Ron did post-doctoral work at the Technische Hochschule Stuttgart, Germany on a Fulbright Scholarship from October 1957 to July 1958 funded by a National Science Foundation Fellowship award for 1957. The theory he developed while there did not explain the experimental results which was very disappointing to him and led him to change his field of study. Decades later it turned out that the problem was that the experimental material had been contaminated. By the time this was discovered, Ron had spent 3 additional years learning a new field of study.

From 1958-1961 Ron worked as a post-doc at the MIT Laboratory for Insulation Research that Professor Arthur von Hippel founded to study the electrical properties of metals. He co-authored one article with Prof. A. von Hippel about this work that was published in 1961: "Distortable Double Well. A Prototype for the Analysis of Relaxation Spectra," J. Chem. Phys. 34, 2165.

In 1961 Ron accepted a position as assistant professor in the Department of Physics (now the Department of Physics and Astronomy) at Iowa State University and moved to Ames. His field of study was the theory of how light affects condensed matter and his goal was to develop theories of the optical absorption, dielectric properties, and electronic excitation spectra of composite systems and surfaces.

He was promoted to associate professor in 1966, to full professor in 1974, and retired as Professor Emeritus in 1996, though he continued to go to his office, referee papers and attend seminars until 2012.

He was elected a Fellow of the American Physical Society and a member of the scientific research honor society, Sigma Xi, in addition to Tau Beta Pi, mentioned earlier.

In 2009 he was given an American Physical Society award for being an outstanding referee. Ron had evaluated an average of 4 papers a year during the 50 years 1961-2010. He was a magnificent editor, objective and careful, whose helpful suggestions improved the clarity of each paper he refereed and whose incisive mind could discover flaws in the physics!

During the 35 years he was at ISU before his retirement Ron published at least 50 refereed papers, for 10 of which he was the only author. He also arranged two year-long faculty improvement leaves to Germany, one year-long Overseas Fellowship to the UK, at least 5 shorter trips to Mexico, 3 to Chile, 2 to Italy, and 1 each to Spain, Hong Kong, and China so he could work and talk with physicists from other countries.

In addition to his research and editing work during 1961-1996, mentioned above,

Ron taught about 50 classes, contributed chapters to at least 2 books not already mentioned, published 7 articles in non-refereed publications, gave at least 48 talks, and presented at least 36 contributed papers - about 1 per year at the March American Physical Society meetings, probably! - and guided the research of 3 Ph.D. students, 2 M.S. students, 4 summer trainees, 2 honors program projects, and 3 senior research projects. He was on the graduate student committees of 70 Physics Majors and 27 Non-Physics Majors.

After he retired he published at least 3 more refereed articles.

A high point of Ron's research occurred around 1975 when he was the first in the world to discover the surface modes of cubes when exposed to a uniform electric field. He found them while trying to explain the results of an experiment someone had done in Stuttgart, Germany while he was there on a faculty improvement leave 1973-4. The result is probably that given in his 1975 paper, "Theory of the Optical Properties of Ionic Crystal Cubes," Phys. Rev. B 11, 1732.

He enjoyed lasting friendships with physicists around the world, fellow musicians, and others. He was honest, faithful and kept his word. He could never understand why, if one had agreed to meet him at a particular location, one might move to go around a corner "just to check"!

He was surprised and honored when several physics collaborators worked together to organize the Ronald Fuchs symposium in Puebla, Mexico, in 2006 in honor of his 75th birthday, soon after he finished treatment for his first bout with cancer.

In addition to Physics, Ron loved classical music, mountain climbing, bicycling, computers and his family. He ran three marathons.

He sang with the Ames Choral Society for some years after he first moved to Ames. He learned to play many different instruments from harmonica and ukelele to piano, recorder and violin.

For 35 years until the month before he died Ron played weekly with the Squaw Creek Recorder Ensemble. He cried when he could no longer play with them. We are so glad they are here to play for us today.

Ron and his daughter Erica played second violin together for over 15 years in the Central Iowa Symphony. The last CIS concert in which they participated was May 1, 2011. In 2012 the Central Iowa Symphony honored Ron by establishing a fund to support the principal 2nd violinist chair called "the Ron Fuchs named chair".

He joined the Unitarian-Universalist Fellowship of Ames when he first came to Ames and supported it faithfully for more than 50 years.

He also loved climbing mountains, getting happier and more surefooted the higher he went.

Ron rode his bicycle as long as he could, then rode the bus. He practiced his environmental principles.

He set up and managed 4 websites for almost 2 decades: his own, the Central Iowa Branch of the Royal Scottish Country Dance Society's; a website on antibiotics; and a website on light pollution/dark sky.

Ron enjoyed solving problems of all kinds. He found great satisfaction in hands-on electrical work, carpentry, and sewing! He created non-glare lamp fixtures, a swing-set creatively attached to a tree, down sleeping bags that could be used for 1 or 2 persons before such were commercially available, Halloween costumes for his children, an adjustable height work bench table, and designed a bed in a ceiling as well as many other projects.

Ron was a steady, reliable, trustworthy, smart, creative, supportive explorer with a deep reservoir of kindness and love inside him, who would climb mountains placing each foot carefully while he did so, all wrapped up in a beautiful package. His kindness, caring and intellect are greatly missed.

During Ron's last year, he fought with determination to remain as healthy as possible and live life to its fullest even as his plasmacytoma, chemotherapy and the severe pain of arthritis reduced his quality of life.

Ron's body was cremated and it is planned his ashes along with Holly's will eventually be placed in Bluff City Cemetery, Elgin, IL near Holly's parents and two sisters.

Ron is survived by his wife Carol "Holly" Edwards Fuchs of Ames, IA; his son Alan Edwards Fuchs (Catherine Soyoung Kim) of Needham, MA; his daughter Erica Bates Fuchs (Paul Kenneth Hokanson) of Ames, IA; his grandchildren Sarah Dahi Fuchs of Needham, MA, Emma Jihae Fuchs of Needham, MA, and Cal Hokanson-Fuchs of Ames, IA; first cousin Verena "Vreni" Durey of Senaillye, France; half first cousin Hans Salm-Morgenthaler (Hedi Salm-Morgenthaler) of Allenwil bei Schuepfen, Switzerland; first cousins once removed Kathrin Siegenthaler Baumann (Walter Baumann) of Bolligen, Switzerland, Claude Durey Choux (Yves Choux) of Chalon-sur-Saone, France, Anie Durey Rogge of Dijon, France, Jacqueline Poussier Bouchet of Merindol les Oliviers, France; half first cousin once removed Hanspeter Kull-Wolleb (Madeline Kull-Wolleb) of Ruperswil, Switzerland; and many others.

He was preceded in death by his parents.

Memorials may be directed to the Central Iowa Symphony, PO Box 1080, Ames, IA 50014-1080 to endow "the Ron Fuchs named chair" or to the Unitarian-Universalist Fellowship of Ames, 1015 N. Hyland Avenue, Ames, IA 50014.

Condolences may be sent to <www.grandonfuneralandcremationcare.com>.

Ron's Philosophy on Dealing With Differences

...I would like to give you one... thought about a general way in which one can deal with differences; it applies ... to relations between all people - rich and poor, jews and palestinians, christians and atheists, etc., between which there may be a conflict.

The thought is ...: 'What is hateful to you, do not do to any person.'

If everyone lived in accordance with this saying, I am convinced that most conflicts would be resolved without painful encounters, aggressive behavior, and wars.

This saying does not prescribe how to resolve a conflict - a process which may be very difficult; it stipulates only that it must be resolved in such a way that the two sides proceed so as not to hurt each other, since being hurt is certainly hateful.

In closing, I hope you will keep this saying in mind as you interact with each other...

- Ron Fuchs (October 29, 2000)

