Paul R. Halmos – Lester R. Ford Awards

Kenneth S. Williams

"Everything You Wanted To Know About $ax^2 + by^2 + cz^2 + dt^2$ But Were Afraid To Ask", *The American Mathematical Monthly*, 125:9, 797–810, 10.1080/00029890.2018.1503003.

The author leads us through explorations of the numbers that can be generated by $ax^2 + by^2 + cz^2 + dt^2$ where x, y, z, t are any integers. Through a lively series of questions and answers we are taken from the very basic result of every integer being the sum of four squares up through the current state of the art in quadratic forms, a journey of over two hundred years, that leaves the reader with a satisfying overview of the mathematics of quadratic forms (and a few exercises to carry out to improve the understanding). The presentation of this paper has been thought out to make it friendly for a general audience. The flow of questions and answers follows one after another in a natural way, and so we are left with the feeling of having had a conversation with the author, and a quite enjoyable one at that.

Response

I am thrilled and honored to have been selected as a recipient of the Paul R. Halmos - Lester R. Ford Award for 2019. I received many valuable suggestions for improving the presentation of my article from the referees and the editor. I thank them again for their help. I hope that readers of my article will be further motivated to learn more about the fascinating world of quadratic forms. Finally I would like to thank my wife Carole for all her encouragement of my mathematical work over 56 years of married life together.

Biographical Sketch

As a point of interest the secondary school I attended in England was founded in 1541 by King Henry VIII and I had classes in what is believed to be the oldest classroom in continuous use in the UK. From there I went to the University of Birmingham and graduated with a B. Sc degree in mathematics in 1962. I received my PhD in mathematics from the University of Toronto in 1965 and from 1966 to 2002 I was a faculty member at Carleton University in Ottawa, Canada. I retired in 2002 as Professor Emeritus. After 56 years of marriage, my wife decided that in retirement I should learn to cook a few meals. Under her tutelage I am now proficient in making a good English cottage pie, tasty Italian spaghetti and meat balls, and spicy Mexican tacos! I also enjoy gardening, birding, and spending time with my 10-year-old granddaughter Isabelle.