Abstract

The open problem posed by Paul Erdős asking for the smallest number of edges in a 4-dimensional graph is solved by showing that a 4-dimensional graph must have at least 9 edges. Furthermore, there is only one 4-dimensional graph with 9 edges, namely $K_{3,3}$.

This talk is oriented towards students, answering three questions: What is a graph? What is the dimension of a graph? What is the smallest number of edges in a 4-dimensional graph?

About the speaker: Rodger House began his undergraduate career in the fall of 1961 at Carnegie Institute of Technology (now Carnegie Mellon University) in Pittsburgh, Pennsylvania. Although he was a math major from the very beginning, he was lucky to be able to take a course in computer programming his freshman year. (There was no such thing as computer science in those days.) He intended to become a mathematician, but he was seduced by a computer at a young age, and he has spent most of his working life writing computer programs. He did manage to finish his undergraduate education at UC Berkeley in 1993, and went on to get an MA in mathematics at San Francisco State in 1997. He is sure that in a parallel universe not too far from this one he is, in fact, a mathematician.