Robert Bixby (DMath)

Mr. Chancellor, I present Robert Bixby.

Although he is now best known for his work in optimization, early in his career Robert Bixby worked mainly in combinatorics, especially on the theory of matroids. Matroids provide a unifying concept in combinatorics. They are also important in optimization, where the presence of this structure often corresponds to the solvability of a combinatorial optimization problem. Professor Bixby made important contributions to matroid theory, including a beautiful characterization for the class of ternary matroids.

Beginning in the 1980's, Professor Bixby's attention shifted to linear optimization. The linear programming model is very important in applications, because it can be solved efficiently and provides accurate models in many situations, and because many more general problems are solved by using linear programming as a subroutine. Linear optimization is arguably the single most important mathematical model. Since the 1980's, Professor Bixby's work on linear optimization and integer programming led to the invention of the most successful linear optimization and integer programming software. These were further developed by two very successful companies: CPLEX Optimization and Gurobi Optimization. Both of these companies were co-founded by Professor Bixby.

Professor Bixby is currently Noah Harding Professor Emeritus of Computational and Applied Mathematics at Rice University, as well as Research Professor of Management in Rice University's Jones School of Management. He was elected to the U.S. National Academy of Engineering in 1997 for his contributions to the theory and practice of Optimization. He received the INFORMS Impact Prize, the Beale-Orchard-Hays Prize from the Mathematical Programming Society and the Lanchester Prize for the best contribution to Operations Research and the Management Sciences.

Mr. Chancellor, in recognition of his outstanding contributions to combinatorics and optimization as well as operations research, I request that you confer the degree, Doctor of Mathematics, *honoris causa*, upon Robert Bixby.

Biography: Robert Bixby is Noah Harding Professor Emeritus of Computational and Applied Mathematics at Rice University, as well as research professor of management in Rice University's Jones School of Management. His research is mainly in the theory and practice of optimization. In addition, he is the president of Gurobi Optimization. He earned a BS degree in Industrial Engineering and Operations Research from the University of California, Berkeley, and MS and PhD degrees in Operations Research from Cornell University. He has held academic positions at the University of Kentucky, Northwestern University, and Rice University, and has received numerous awards for his research.