Professor Robert S. Brodkey received his B.S. in Chemistry in 1950 and his M.S. in Chemical Engineering also in 1950 from the University of California, Berkeley. At the University of Wisconsin, he received his Ph.D. in Chemical Engineering in 1952, doing a study in freeze-drying. He spent 5 years with Standard Oil of New Jersey in their Esso Research and Engineering Company research facility. There he worked on diverse chemical and chemical engineering problems, including chemical synthesis (5 patents) and chemical process (5 patents). In 1957, he joined OSU as an Assistant Professor of Chemical Engineering, became Associate Professor in 1960, Professor in 1964 and Professor Emeritus in 1992.

His work has been primarily in the field of fluid mechanics with specialization in the areas of fundamental turbulent fluid flow (~40 publications), mixing (~25 publications), rheology (~15 publications), and two phase flow (~10 publications). Recently he has been involved in the application of image processing and analysis to problems in fluid mechanics (~10 publications). Some 30 additional publications, as well as textbooks and reviews, on a variety of fields have appeared in the literature. He is well known for his graduate text, The Phenomena of Fluid Motions, which was reprinted by Dover Publications in 1995. His undergraduate text, Transport Phenomena: A Unified Approach, (with H.C. Hershey) was published in 1988 by McGraw-Hill as part of their prestigious Chemical Engineering Series. The text has been translated into a two volume Greek edition.

 Professor Brodkey received a "Senior U.S. Scientist Award" (1975) from the Alexander von Humboldt Foundation, a "Senior Fellowship in Science" (1972) from NATO, and the "Outstanding Paper of the Year Award" (1970) from the Canadian Society for Chemical Engineering. For the Fall of 1978, he received the Visiting Professorship award from the Japan Society for the Promotion of Science. He was selected to receive The Ohio State University's Distinguished Senior Research Award (1983) and a Senior Research Award (1983) from the College of Engineering of The Ohio State University. This latter award, which can be given every three years for work based on the preceding three years, was awarded again to Prof. Brodkey in 1986. During the summer of 1983 he was once again invited to visit Germany under the von Humboldt Senior U.S. Scientist Program. In 1985, he was awarded the Senior Research Award of the American Society of Engineering Education and elected a Fellow of the AIChE. In 1986, he received the Chemical Engineering Lectureship Award sponsored by 3M and given by ASEE. In 1987 he was elected a Fellow of the American Physical Society. He has also been made a fellow of the American Association for the Advancement of Science (1954) and of the American Institute of Chemists. In 1994, he held the W.W. Clyde Chair of Engineering at the University of Utah, received the 1994 North American Mixing Forum's award for Outstanding Research, and had two sessions at the San Francisco Annual AIChE meeting held in his honor for his 65th birthday. Another session on turbulence was held in his honor of his 70th birthday at the 1998 Annual AIChE meeting. In 2002, a symposium on “Turbulence in Chemical Processing” was help at USNCTAM-14 in his honor. Professor Brodkey is still active in research, teaching, and departmental affairs, even though he has been appointed as an Emeritus Professor.

He has retired as vice-chair and treasurer of the US National Committee-Theoretical and Applied Mechanics (1995-1998). He formerly was the AIChE representative to the committee (1987-1995). He chaired the Scientific Committee of the XI-U.S. National Congress on Theoretical and Applied Mechanics that was held in May of 1990. He was a member of the ABET/AIChE Chemical Engineering Visiting Accreditation Panel and of the AIChE Fluid Mechanics Program Committee and the Mixing Area Committee. He was on the organizing committees for the Symposium on Turbulence, Rolla and the Beer Sheva Seminar on Magnetohydrodynamics and Turbulence (Israel). He is a member of a number of other honorary and professional societies such as Sigma Xi, AIChE, ACS, APS, AAM and AAAS and is listed in many of the standard biographical references.

In addition, he has presented nearly 100 invited seminars and lectures at Universities and establishments in the U.S. and in 13 countries overseas. He has given about 50 lectures at industrial research centers. Major invited papers were at the IX Symposium Nacional de Ingenieria Quimica, Monterey, Mexico (1984) and a special review lecture at the Coherent Structures in Turbulence Workshop, Austin, Texas (1986). He was a Keynote Speaker on "Image Analysis for Coherent Structures in Turbulence Research" at the international meeting on Experimental Methods in Heat Transfer, Fluid Mechanics and Thermodynamics that took place in Dubrovnik, Yugoslavia (1988) and a Plenary Lecturer on "Imaging and Chemical Engineering Research" at the 10th International Congress CHISA '90 that took place in Prague, Czechoslovakia. In the summer of 1999, he delivered the Plenary Lecture at Mixing 6 in Bradford, England.

Professor Brodkey has acted as advisor to nearly 45 Ph.D. students. He has been advisor to over 40 M.S. students.