

At a meeting of the FACULTY OF ARTS AND SCIENCES on February 15, 2011, the following tribute to the life and service of the late Sidney R. Coleman was spread upon the permanent records of the Faculty.

SIDNEY R. COLEMAN

BORN: March 7, 1937

DIED: November 18, 2007

Sidney R. Coleman, the Donner Professor of Science at Harvard and one of the truly unique characters in theoretical physics, died on November 18, 2007, at age 70.

Sidney was born in Chicago on March 7, 1937. He graduated from the Illinois Institute of Technology in 1957 and went on to graduate school at California Institute of Technology, where he studied with Murray Gell-Mann. In 1961, Coleman came to Harvard as the Corning Lecturer and Fellow. For over 30 years Sidney was the leader of the Harvard group in particle theory.

Sidney's great love was "quantum field theory," the theoretical language combining quantum mechanics and special relativity. As his Nobel Prize-winning colleague, Steven Weinberg said, "Sidney was most interested in understanding the foundations of theory rather than the special cases relevant to describing nature, and he revealed many of the deepest aspects of this grand theoretical structure through his work." In the early 1960s he was a leader in the application of Gell-Mann's idea of approximate $SU(3)$ symmetry of the strong interactions. In the late 1960s and the 1970s his work on scale invariance and renormalization paved the way for our understanding of strong interactions, Quantum Chromodynamics, in particular in the discovery of asymptotic freedom, independently in the Ph.D. thesis of Sidney's graduate student David Politzer, and at Princeton by David Gross and Frank Wilzcek, for which the trio were awarded the 2004 Nobel prize. In the late 1970s and 1980s the results and the techniques in Sidney's work on vacuum decay were crucial for the beginnings of the quantitative description of the beginning of the universe.

For much of his career Sidney was the preeminent teacher of quantum field theory in the world and his approach to the subject, relying heavily on beautiful symmetry arguments, had enormous influence. He had about 40 Ph.D. students, many of whom became leaders in the field of high energy theory. Many hundreds of students from all over the Boston area attended his brilliant and witty lectures on quantum field theory, and his notes formed the basis of courses and eventually textbooks used worldwide. Students and colleagues pored

over his classic papers and summer school lectures. These were masterpieces. Sidney labored over them until no word was out of place and no explanatory or pedagogical opportunity was missed. In 1989 he won the US National Academy of Sciences Award for Excellence in Scientific Reviewing for his “lucid, insightful, and influential reviews.”

While his first love was the teaching of graduate level quantum field theory, Sidney also gave brilliant undergraduate lectures. This was a personal sacrifice, because Sidney was renowned for doing his best work in the wee hours of the morning, and it was never clear whether he was better off getting a few hours of sleep before a late morning undergraduate class or simply staying up for it.

Not a cloistered academic, Sidney was a public intellectual in the best sense. He had a deep interest in science fiction, writing and publishing science fiction criticism himself. He served behind the scenes as a science advisor to a number of movies and *Nova* programs.

He received the Dirac Medal and the Dannie Heineman Prize. He was a fellow of the American Academy of Arts and Sciences and the National Academy of Sciences.

Sidney’s wit could be as biting as it was brilliant, and his friends bore the brunt of this and loved it. They could count on Sidney to keep their head sizes under control. “Courtesy,” Sidney argued, “is for strangers. Kindness is for friends.” Health problems bedeviled the end of Sidney’s life and deprived the world of what would surely have been an affectionately irreverent elder statesmanship. In the words of his good friend and our former colleague Sheldon Glashow, “Sidney was both an incomparable teacher and the most learned sage and sharpest critic in the world of theoretical physics. He was Pauli’s tongue in Einstein’s image. We have been deprived all too soon of one of our generation’s most profound and imaginative minds.”

He is survived by his wife of 25 years, Diana Coleman, of Cambridge, Massachusetts, his brother, Robert Coleman, of Albany, California, and many friends and admirers around the world.

Respectfully submitted,

Nima Arkani-Hamed
Arthur Jaffe
Howard Georgi, Chair