ELMER L. GADEN JR., often called “The Father of Biochemical Engineering,” graduated from Columbia (Ph.D. ’49), was a member and often chair of chemical engineering, 1950–1974, was first editor of Biotechnology and Bioengineering (1959–1974), and retired as Willis Johnson professor from the University of Virginia in 1994. He is a noted military historian who taught the subject at Columbia and is, as well, an avid naturalist.

THE GADEN LECTURE is an annual examination of the changing interface between chemical engineering, cognate sciences, and society.

PAST GADEN LECTURERS

George Georgiou 2007
Frank Bates 2008
Frances Arnold 2009
John H. Seinfeld 2010

The Department of Chemical Engineering
Columbia University

2011 Gaden Lecture

presented by

Chaitan Khosla
Chair, Chemical Engineering
Wells H. Rauser and Harold M. Petiprin Professor in the School of Engineering at Stanford University
Professor of Chemical Engineering, Chemistry, and Biochemistry, by courtesy
CHAITAN KHOSLA, professor in the Departments of Chemistry and Chemical Engineering, received his Ph.D. in 1990 at Caltech. After completing postdoctoral studies at the John Innes Centre in the UK, he joined Stanford University in 1992. Over the past two decades he has studied polyketide synthases as paradigms for modular catalysis and has exploited their properties for engineering novel antibiotics. More recently, he has investigated celiac sprue pathogenesis with the goal of developing therapies for this widespread but overlooked disease. He has coauthored more than 250 publications and 50 U.S. patents and is the recipient of several awards and honors, including membership of the American Academy of Arts and Sciences and the National Academy of Engineering.

Abstract:
Over the past two decades, much of the research in our laboratory has focused on understanding the modular, assembly line logic of polyketide synthases. These multifunctional enzymes catalyze the biosynthesis of numerous complex natural products, including many well-known and emerging antibiotics. A better understanding of their programmable catalytic cycles will create new opportunities for engineering green processes to make functionally dense, chiral synthons.