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Department of Chemistry
Gassman Lectureship in Chemistry
September 22-25, 2015

September 22-25, 2015
Professor Amir H. Hoveyda

Department of Chemistry, Boston College

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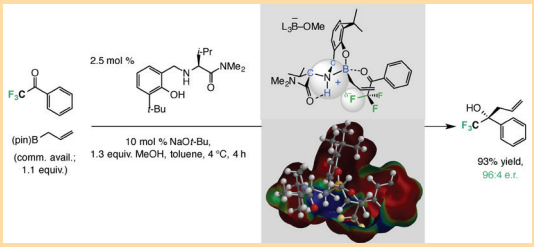
Host: Ian Tonks

Amir H. Hoveyda is the Joseph T. and Patricia Vanderslice Millennium Professor of Chemistry in the Department of Chemistry and Merkert Chemistry Center at Boston College. He has been chair of the chemistry department since July 2006. He earned his bachelor's degree from Columbia University, and his doctorate from Yale University under the tutelage of Professor Stuart L. Schreiber. He was a post-doctorate fellow at Harvard University, working with Professor David A. Evans. Before joining the faculty of Boston College in 1990, Hoveyda worked for Pfizer Central Research in its Cancer Group.

Hoveyda's honors and awards are numerous and include the Alfred P. Sloan Research Fellowship; Camille Dreyfus Teacher-Scholar Award; American Chemical Society Cope Scholar Award; Novartis Research Award in Synthetic Organic Chemistry; ExxonMobil Excellence in Catalysis Award; Boston College Distinguished Teaching Award; National Science Foundation Creativity Award; National Institutes of Health MERIT Award; Tishler Prize, Harvard University; Yamada-Koga Prize; American Chemical Society Award for Creative Work in Organic Synthesis; and Eni Award. He is active in the scientific community, currently serving on the editorial advisory board for *Chemical Communications*, on the scientific advisory board for *Madera Biosciences*, and as a scientific consultant for Celgene/Avilomics and Givaudan Inc. He is also principal co-founder of XiMo Inc.

His research encompasses introducing efficient new chiral catalysts that can be used to synthesize important enantiomerically pure compounds for the preparation of biologically and medicinally active agents. The focus is on important transformations such as conjugate additions and olefin metathesis, which cannot be catalyzed efficiently by existing methods. He is interested in complex molecule total synthesis (testing catalysts), study of reaction mechanism (how do the catalysts work?) and new approaches to catalyst discovery (combinatorial chemistry).

Lecture 3: *Understanding Fluorine-Induced Ion–Dipole Attraction and Harnessing it in the Design of Catalytic Enantioselective Processes*
4 p.m. Friday, September 25, 2015, 331 Smith Hall



More than 150 fluorine-containing drugs have been marketed since the mid-1950s; nearly one-fifth is sold today. The impact of organofluorine compounds in agrochemicals and materials research is similarly prominent. Better understanding of the influence of fluorine atoms on physical characteristics and ability of their host molecules to interact with other entities, particularly in the liquid phase, is therefore crucial. Additionally, because identification of desirable organofluorine compounds is for the most part the exclusive purview of laboratory synthesis and screening protocols (vs. natural products), development of efficient and broadly applicable catalytic transformations that furnish such entities in high enantiomeric purity constitutes a compelling objective. In this Lecture we see that ammonium/fluorine–carbon (F–C) bond electrostatic (ion–dipole) attractions play a key role in controlling the enantioselectivity of additions of allyl- or allenylboron reagents to fluoro-substituted ketones. Versatile and otherwise difficult-to- access tertiary alcohols can be obtained in up to 98 percent yield and >99:1 enantiomeric ratio. The electrostatic influence of different types of fluoride containing moieties on enantioselectivity and their interplay with more familiar dipolar and/or steric forces are also elucidated. The interactions described may be instrumental in the design of selective new transformations that involve fluoro-organic molecules.

Regents Professor Paul G. Gassman died in April 1993, at the age of 57. He was internationally known in the chemical community, and left behind a legacy of achievement. During his career, he served as mentor and adviser to 85 doctoral and master's candidates as well as dozens of postdoctoral associates and undergraduate students. Numerous awards, honors, and honorary degrees were bestowed in recognition of his contributions to research and his service to the scientific, professional, and university communities. Some of these awards include election to the National Academy of Sciences (1989) and the American Academy of Arts and Sciences (1992), the James Flack Norris Award in Physical Organic Chemistry (1985), Arthur C. Cope Scholar Award (1986), and the National Catalyst Award of the Chemical Manufacturers Association (1990). He served as president of the American Chemical Society in 1990. He was co-chair of the organizing committees of the National Organic Symposium (1991) and the National Conferences on Undergraduate Research meeting (1992), on the University of Minnesota campus. It was his wish that a lectureship be established to bring distinguished organic chemists to the Department of Chemistry. We are proud to present this lecture series in his honor.