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50 years of physical organic chemistry

It is our great privilege to honor our colleague Professor Charles L. Perrin on completion of 50 years in the pursuit of research in Physical Organic Chemistry. Charlie completed his 50th year as Professor in 2013, a milestone celebrated with a symposium in his honor (September 30, 2013 at UCSD) and this collection of commemorative publications.

Charlie, a native of Pittsburgh, started his chemistry career as an undergraduate at Harvard University and advanced to graduate school at Harvard in the lab of Frank Westheimer, one of the early pioneers of physical organic and bioorganic chemistry. Harvard brought Charlie two important life long loves: his love for physical organic chemistry; his love for Marylyn – his wife of 50+ years.

One of Charlie's earliest contributions, more than half a century ago, was in the area of mercuration of phenol. These studies could easily serve as prior art for many aspects of modern gold chemistry and noble metal C-H activation. In his early independent career, Charlie tackled problems in aromatic substitution chemistry, which lead to the introduction of "ipso substitutions" in the common parlance of chemists.

Charlie has always been a benevolent skeptic with emphasis on the latter. This trait can be clearly seen in his approach to research on the anomeric effect (stereoelectronics) and strong-symmetric hydrogen bonds. The robustness and reliability of data in these two important areas of organic chemistry research has been largely enhanced by Charlie's focus on critical testing of fashionable speculations. Very recently, Charlie has caught the attention of the community once again with the discovery of a halide activated enediyne cycloaromatization.

For this past half century, Charlie has always placed a priority on education and teaching. His text on mathematics for chemists is a classic. His classroom lectures have garnered numerous student selected teaching awards and his graduate and research lectures exemplify the best in fundamental research as a vehicle for liberal education.

Through his dedication to teaching and personal coaching, Charlie has earned a special respect as colleague and mentor. The issue published here comprises a number of contributions from close friends who have experienced the unique character of Perrinism.

The spectrum of studies found here covers the fundamentals of chemical structure and reactivity (acidity, hydrogen/halogen bonding, photochemistry, and conformational analysis) as well as the application of these fundamentals to our understanding of the 'fitness' of DNA glycosides, the robustness of supramolecular assemblies, molecular machine design and Green chemistry processes. In a capstone piece, Charlie brings together his own perspective on his more than half a century of research, teaching and service.

It has been our pleasure to collect and edit these contributions in honor of our good friend and special colleague. We wish Charlie another half century of joy in pursuing his passions. We hope every reader may take away from this collection a sense of Charlie's special take on Physical Organic Chemistry as a prolific area for research and vehicle for teaching.

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